Dental Abstracts

a selection of world dental literature

AMERICAN DENTAL ASSOCIATION

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Lon W. Morrey, D.D.S., editor
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SECTIONS

Anesthesia and analgesia *page* 463
Anthropology *page* 476
Bacteriology *page* 470
Biochemistry *page* 471
Dentistry around the world *page* 498
Education *page* 499
Endodontics *page* 483
Forensic dentistry *page* 496
General *page* 503
Histology *page* 480
History *page* 500
Oncology *page* 454
Operative dentistry *page* 451
Oral surgery *page* 457
Organization *page* 502
Orthodontics *page* 486
Pathology *page* 472
Pedodontics *page* 485
Periodontics *page* 467
Physiology *page* 481
Prosthetic dentistry *page* 489
Public health dentistry *page* 491
Roentgenology *page* 460
Therapeutics *page* 464
New equipment *page* 507
Doctoral and Masters' dissertations *page* 508

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Operative dentistry

A new type of interdental wedge

J. J. Messing. *Brit.D.J.* 108:18-19
Jan. 5, 1960

It is axiomatic that, when inserting a Class II amalgam restoration, or a Class III amalgam or silicate restoration, the matrix should be wedged tightly against the gingival margin of the cavity and the tooth should be separated slightly from its neighbor.

The most commonly used wedges are pieces of wood, prepared by cutting down a matchstick or dental stimulator to fit the interspace. This type of wedge possesses drawbacks, notably the time required to cut and shape the wood, and also its friability when used in thin layers. The design of ready-made plastic and celluloid wedges fails to produce good matrix adaptation. Such wedges usually are rectangular in cross section, with flat straight sides converging to a point. When pushed into the interdental space, the wedge makes only tangential contact with the matrix band so that amalgam is bound to extrude during condensation. Another disadvantage is apparent in instances where the gingival margin of the cavity extends beyond the edge of the interdental papilla. The point at which pressure must be applied is below the gingival margin, but the shape of the wedge prevents the application of pressure solely in this location and results in buckling of the band. This produces a concavity in the proximal surface of the filling and in some instances a deficiency at the margin (Fig. 1).

The author has designed a silver wedge which overcomes many of the shortcomings of other wedges. The silver wedge is triangular in cross section. The base of the triangle produces the separating action, and the surface which makes contact with the matrix is cut in a concave arc to follow the proximal convexity of the gingival margin (Fig. 2). The contralateral surface is flat to insure frictional resistance against the adjacent tooth. The wedges are produced in pairs (a mesial and a distal wedge) and can be applied from either lingual or buccal aspect. Insertion and withdrawal are facilitated by the provision of a handle with grooves to accommodate the beaks of a pair of dressing forceps.

Silver is an ideal wedge material. It can be cast or drilled without difficulty, withstands steriliza-

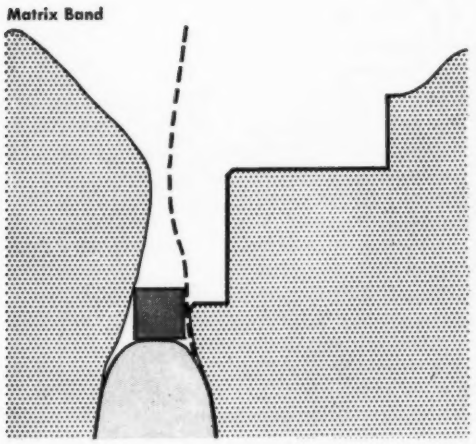

Figure 1 Failure to produce correct proximal contour because of incorrect shape of wedge

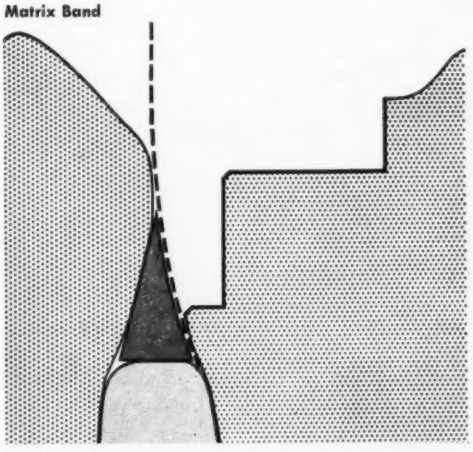

Figure 2 Correct proximal contour results from use of silver wedge

tion, and is soft enough to be readily adaptable to teeth. After use, the wedge can be bent back to its original shape without fear of fracture.

University College Hospital Medical School, Great Portland Street, London W.1, England

The relationship of amalgam to the cavity wall

S. D. Hatt. *D.Practitioner* 10:76-86 Dec. 1959

A study was made of the effect on the relationship of amalgam to the cavity wall as influenced by varying: (1) the amount of mercury expelled from the amalgam immediately after trituration and prior to condensation; (2) the condensation method, and (3) the condensation pressure.

One hundred and ninety-four amalgam specimens were made by condensing amalgam into an artificial cavity prepared in steel, designed to simulate the proximal aspect of a typical Black's Class II cavity. The alloy used was New True Dentalloy, and the ratio of 5 parts of alloy to 7 parts of mercury, as recommended by the manufacturer, was adhered to. The materials were amalgamated in an S. S. White amalgamator for 17 seconds. The quality of the relationship of the amalgam to the cavity wall was assessed by means of a Talysurf surface analyzer.

The findings were as follows:

1. So long as the amount of mercury expelled from the amalgam was within the range of 20 to 25 per cent of the original quantity of mercury (with hand condensation) and of 25 to 30 per cent (with mechanical condensation), this variable had a relatively insignificant effect on the relationship of amalgam to the cavity wall.

2. The ideal pressure required in the hand condensation technic was 2,800 psi.

3. One of the two hand condensers used was a flat packer, trapezoidal in outline, with an area of 0.0036 square inch. Its outline enabled it to gain access to the line angles of the cavity and to the angle formed by the cavosurface angle and the matrix band. With this condenser, the average size of the spaces between the amalgam specimen and the cavity wall was 61 microinches, and along the cavosurface angle it was 76 microinches.

4. The other hand condenser used was a flat serrated packer, circular in outline, having a diameter of 0.06 inch and an area of .0028 square inch. With this condenser, the sizes of the respective spaces were 66 microinches and 140 microinches.

5. The best results were produced with mechanical condensation, using a Swedish Dentatus instrument. With mechanical condensation, the sizes of the respective spaces were 25 and 38 microinches.

6. The average amount of residual mercury present in the specimens was 48.9 per cent.

Turner Dental School, Manchester, England

Clinical evaluation of the ultrahigh speed Airotor handpiece in general dental practice

B. S. Aarons. *J.dent.Belge* 50:509-516 Nov.-Dec. 1959 [in English]

With the advent of the ultrahigh-speed handpiece detailed cavity preparation can now be approached more readily, more efficiently and more accurately.

Historically, operative dentistry has passed through the stages of primitive hand cutting tools, hand-powered dental units with motor-drawn pulley systems and handpieces, and handpieces which were operated by high-velocity air power. The practitioner developed his skill in cavity preparation with a conventional rotary speed of between 2,000 and 6,000 rpm. In the last decade advances have been made by increasing the rotational speed of handpieces. J. R. Jensen (1957) suggested the following classification: (1) conventional speed, up to 6,000 rpm; (2) standard high speed, up to 20,000 rpm; (3) transitional high speed, up to 40,000 rpm; (4) true high speed, up to 100,000 rpm, and (5) ultrahigh speed, up to 250,000 rpm.

The purpose of this study was the evaluation of the Airotor handpiece used clinically at approximately 250,000 rpm.

Vibration transmitted from the revolving cutting bur or stone to the tooth to be prepared is the major cause of apprehension, discomfort and pain to the patient. It has been demonstrated,

however, that at the Airotor speed above 200,000 rpm the adverse vibration factor and bone conducted noise are eliminated.

The necessity of minimizing frictional heat that is generated by any cutting instrument is of paramount importance in the use of the Airotor handpiece. Theoretically, the higher speeds create increased heat at the cutting site. The use of a coolant, preferably an air-water spray with an adequate amount of accurately directed water jet, is essential. The Airotor has a double outlet for the air-water spray directing both streams toward the center of the head of the cutting bur or stone. Because the dentin is an insulating medium which retains heat, it is mandatory that the dental assistant be skilled in maintaining an accurately directed water stream, and regulating the suction and evacuation of wash water during all cavity preparations.

The factors governing good operative procedures must be kept in force when ultrahigh-speed technics are used. The same adequate anesthesia, either block or infiltration method, which was employed previously must be maintained. There are patients in whom pain perception during cavity preparation is minimal, and they will not require the use of an anesthetic even if ultrahigh-speed is employed. Occasionally, the removal of defective amalgam restorations can be accomplished painlessly without administering an analgesic agent. With the ultrahigh-speed Airotor handpiece, a defective gold crown can be removed by simply cutting it in half with a small round bur; also a fixed bridge can be sectioned easily by cutting it with a small fissure bur. A faulty porcelain veneer can be sectioned for removal and a gold inlay be cut through its narrowest occlusal dimension and tapped out without danger of fracture to even a weak enamel cusp. A rubber dam should be used when indicated.

The safety factor in using the ultrahigh-speed Airotor handpiece depends entirely on the skill and ability of the operator. Caution must be taken when the bur approaches the surface of an adjacent tooth because the slightest touch may leave a mark or scratch. Accidental injuries to the tongue or cheek can be caused only by the inadequacy of the operator's technic or his failure in gaining the confidence and cooperation of the patient.

The results of various experiments and of numerous clinical studies have revealed that the average patient was delighted with the new experience of ultrahigh-speed cavity preparation. The fatigue, tension and the inherent resistance of the dentist to one of the most difficult procedures in dental practice has been immensely reduced.

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Oncology

The dial painters

Cancer Bul. 11:107-108 Nov.-Dec. 1959

The story of the painters of luminous dials for watches and clocks, who developed cancer after radium ingestion, is of special significance in the history of occupational cancer. In the early 1920's, the dangers of radium were unrecognized. In watch factories, a mixture of radium, mesothorium and zinc sulfide was used. In some plants, the workers (usually women) were taught to point the brush with their lips, and consequently they swallowed some of the mixture.

A number of inexplicable and peculiar illnesses developed among persons who had been employed as dial painters. H. S. Martland, then medical examiner for Essex County, N.J., generally is credited with determination, in 1931, of the cause of the difficulties. Martland, in describing his findings in 18 former dial painters who had died, said that the earlier deaths apparently were caused by anemia and jaw necrosis, but the later ones resulted from osteogenic sarcoma. Five employees of the New Jersey plant sued the company, and the ensuing litigation attracted world-wide attention, before it was settled by mediation.

Today, scientific interest again is centered on those people who, for occupational or therapeutic reasons, took large amounts of radium internally 25 to 30 years ago. One phase of the Atomic Energy Commission's study on the biologic effect of strontium 90 is concerned with the ingestion of radioactive substances.

The dial painters constitute a particularly important group because reasonably exact information about the amount of radium swallowed and the period of time which has elapsed is available. S. D. Clark has estimated (1958) that about 2,000 former dial painters are alive, and some of these apparently are in good health. In addition to the dial painters, persons who were treated therapeutically by radium compounds are being sought.

In one case history reported by Looney and others (1956), a man inexplicably lost the crown of a central incisor which shattered because of resorption of the teeth at the gingival margin. Roentgenograms showed unusual widening of the pulp cavity and destruction of the dentin. These changes were recognized by a consultant as similar to those observed in radium poisoning. A review of the family history showed that the patient, when he was about eight years old, for a short time drank a glass of radium water as a tonic each day.

Several manifestations may signify radium poisoning in a patient of the appropriate age group, especially if the patient is a woman. Many former dial painters have reported an unusually high number of tooth extractions. In some patients, many years after exposure, spontaneous fractures with no sign of a neoplasm at the fracture site, osteogenic sarcomas, and tumors of the paranasal sinuses have appeared.

Studies of the dial painters already have provided important information on the maximum permissible body dosages and on the concentrations of radionuclides in air and water. Sufficient data about these persons could be of inestimable value in the solution of problems related to atomic energy research.

University of Texas, M. D. Anderson Hospital and Tumor Institute, 6723 Bertner Drive, Houston, Texas

Results of treatment of squamous-cell carcinoma arising in mandibular gingiva

John B. Erich and Lyle V. Kragh.
A.M.A.Arch.Surg. 79:100-105 July 1959

A study was made of 118 patients who had squamous cell carcinoma arising in the mandibular gingiva and who were treated at the Mayo Clinic in the ten year period ending in 1954. The patients ranged in age from 38 to 86 years and the mean age was 66 years; 101 (86 per cent) of the patients were men and 17 (14

per cent) were women. Of the 118 tumors, 58 (49 per cent) arose on the right side, 58 (49 per cent) on the left and 2 (2 per cent) in the midline. Extension to the floor of the mouth was present in 17 (14 per cent) of the patients, and extension to the cheek or lip in 36 (31 per cent). In 24 patients (20 per cent), the lesion arose in the region of the posterior commissure or extended to the region of the posterior commissure, tonsil or soft palate. Clinically involved cervical lymph nodes were present on admission in 35 patients (30 per cent). Extensive malignant involvement of the mandible, demonstrated roentgenographically, was present in 26 of the 79 patients in whom roentgenographic studies of the jaw were made.

Treatment was individualized: 23 patients were treated by excision, 64 by electrocoagulation, 15 by electrocoagulation or excision plus radium or radon, 14 by radium or radon, or roentgenotherapy, or both, and 2 patients received no treatment because it was believed the primary lesion was controlled.

The three-year survival rate for the 118 patients was 63 per cent. The five-year survival rate among the 94 patients eligible for a five-year study was 52 per cent.

Estimation of the merits of each method of treatment is difficult. When both the extent of the primary lesion and the presence of cervical metastatic tumors were considered, no significant difference in survival according to the method of treatment could be found. The small, low-grade lesions that required only treatment of the primary tumor and never involved the neck had a good prognosis. The extensive lesions that were treated by irradiation had a much less favorable prognosis. The large intermediate group of lesions, treated by the various methods listed, had about an equal prognosis.

Mayo Clinic, Rochester, Minn.

Treatment of tumors of the parotid gland

R. Funder. *Tskr.norske laegefor.* 79:663-666 June 1, 1959

Of the 150 to 200 tumors of the parotid gland recorded each year in Norway, most are mixed tumors, regarded as potentially malignant because of their tendency to recurrence and transition to malignancy. If the entire capsule, which consists of compressed parotid tissue, and a sufficiently large part of normal parotid tissue are not removed with the tumor, there is danger of recurrence. Total parotidectomy is the ideal treatment. Usually, subtotal parotidectomy is performed in instances of benign mixed tumors, with abundant resection at a good distance from the tumor.

In instances of malignant parotid tumors most authors advise radical parotidectomy without regard to the facial nerve. Selective staining of the parotid gland with a methylene blue solution is advantageous.

Twenty-two operations for parotid tumor were performed from 1956 to 1959 at the Rikshospital in Oslo. The average duration of the tumors was 6 years—4½ years for the benign tumors and 15 years for the carcinomas. The average age of the patients was 43 years; most were women. The tumors occurred almost twice as frequently in the left parotid gland as in the right parotid gland. Local pain was present in the affected region in 7 of the 19 patients with benign tumors. Surgery was performed on 16 patients with primary benign tumors, and 3 patients were operated on for recurrence after earlier operation; subtotal parotidectomy was performed in 18 patients and enucleation of the tumor in 1 patient. Two of the three patients with parotid carcinoma were operated on radically; one patient refused operative treatment.

Inkognitogt 26, Oslo, Norway

Analysis of sites and causes of treatment failures in squamous cell carcinomas of the oral cavity

Gilbert H. Fletcher, William S. MacComb and Ernest J. Braun. *Am.J.Roentg.* 83:405-411 March 1960

Tumors originating on the anterior two thirds of the tongue, floor of the mouth, buccal mucosa, upper and lower gingivae and the hard palate form separate clinical entities with a natural history, histologic behavior and inherent characteristics of their own. Valuable data may be lost if all oral tumors are grouped together for the sake of greater statistical significance.

This study is limited to 224 patients with squamous cell carcinoma of the oral cavity, previously untreated, referred to the M. D. Anderson Hospital for treatment.

Sixty-two patients with carcinoma of the anterior two thirds of the tongue were treated by surgery or radiation or both combined; of 30 patients with no lymph node metastases at any time, 67 per cent were alive after five years; of 32 with lymph node metastases, 25 per cent were alive after five years; 47 per cent of all treated patients were alive after five years.

Forty-six patients with carcinoma of the floor of the mouth were treated. Of 27 patients with no lymph node metastases, 63 per cent were alive after three years; of 19 with lymph node metastases, 58 per cent were alive after three years; 61 per cent of all treated patients were alive after three years.

Thirty-five patients with carcinoma of the buccal mucosa were treated. Of 24 patients with no lymph node metastases, 80 per cent were alive after three years; of 11 with lymph node metastases, 46 per cent were alive after three years; 71 per cent of all treated patients were alive after three years.

Fifty-two patients with carcinoma of the lower gingiva were treated. Of 31 patients with no lymph node metastases, 70 per cent were alive after three years; of 21 with lymph node metastases, 43 per cent were alive after three years; 60 per cent of all patients treated were alive after three years.

A closely integrated program of radiation and surgery, with the use of interstitial radium implants for most lesions of the tongue, buccal mucosa and floor of the mouth, is an efficient way of controlling the primary lesions. Even with patients with tumors at the stage of massive invasion, about one third of the patients have survived three years or more.

Metastatic aggressiveness is the main cause of treatment failure when lymph nodes, even unilateral, are involved, or where the primary lesion is more than 3 cm. in diameter.

Separate staging codes for the primary lesions and neck lymph node metastases are utilized to produce operational charts which reveal detailed information as to the sites and clinical circumstances in which there has been failure to control the primary lesion, the lymph node metastases, or both.

M. D. Anderson Hospital and Tumor Institute, Texas Medical Center, Houston 25, Texas

Ameloblastic odontoma

Finn Clausen. *Rev.stomat.,Paris* 60:590-609 Oct.-Nov. 1959

The ameloblastic odontoma or "adamantoodontoma" is a comparatively rare odontogenetic neoplasm characterized by the simultaneous occurrence of an ameloblastoma and a complex composite odontoma in one tumor mass.

Roentgenographic examinations usually reveal the presence of a large solitary cystic area of the involved jaw containing an irregular cluster of calcified material. The roentgenograms, however, seldom reveal whether unerupted teeth are contained within the tumor.

Histopathologic examinations show that the material removed from ameloblastic odontomas consists of an extremely complex variety of cells, irregularly distributed, and of tissue including enamel matrix, dentin, osteodentin, ameloblasts and columnar squamous or undifferentiated epithelium. In certain instances, stellate reticular tissue, dental papillae, osseous tissue and irregularly calcified globules resembling keratin are parts of the tumor.

Treatment usually consists of surgical removal, by intraoral approach, of the tumor with the patient under general anesthesia, thorough curettage of the cavity, extraction of the involved teeth and the application of iodoform dressings. Postoperatively, intermaxillary wiring may be applied.

Because so few cases (14) of ameloblastic odontoma (excluding the author's four cases) have been reported in the international dental literature, it seems probable that not all the significant clinical and histopathologic manifestations have been correctly described.

The descriptive term "ameloblastic odontoma" justifies its place in the classification of odontogenetic tumors suggested by Pindborg and Clausen in 1958.

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Oral surgery

The surgical exposure of the dislocated mandibular condyle

J. T. Hueston. *Brit.J.Plast.Surg.* 12:275-276 Oct. 1959

Anterior dislocation of the temporomandibular joint, if seen early, always can be reduced by manipulation, although this may require general anesthesia and the use of relaxants. If the dislocation remains unreduced for several weeks (as in the two cases reported), the contraction of capsular structures and obliteration of the former joint space below the fibrocartilage render closed reduction impossible, and open operation becomes necessary.

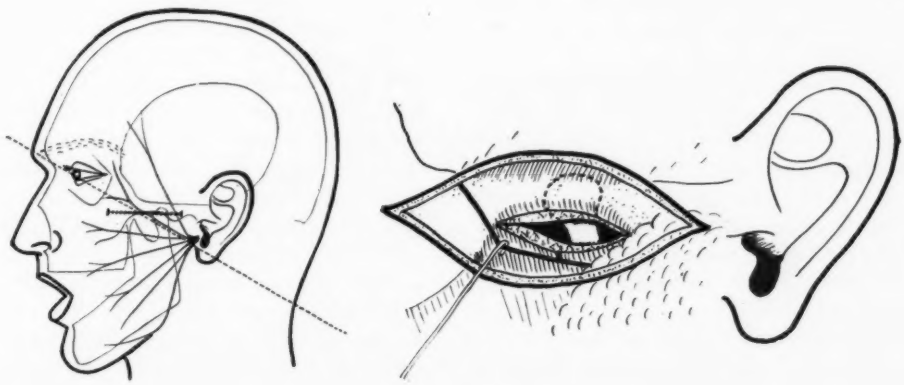
The most important surface marking is that of the zygomatic branch of the facial nerve which directly overlies the dislocated condylar process (illustration, left). A line taken from the lower attachment of the pinna to the pupil of the eye indicates precisely the line of the zygomatic branch of the facial nerve as it emerges from the parotid gland.

The tubercle of the root of the zygoma is a surface guide to the dislocated condylar process. Normally, the condyle lies behind this tubercle when the mouth is shut, and directly below it when the mouth is open. When dislocated, the condylar process passes forward and upward into the infratemporal fossa to lie immediately anterior to the tubercle, deep to the zygomatic arch.

The skin incision lies horizontally along the lower border of the zygomatic arch, extending from the tubercle of the root of the zygoma behind to the body of the zygomatic bone anteriorly. The directness of access afforded by this incision outweighs its cosmetic disadvantage.

The zygomatic branch of the facial nerve is found as it emerges from the parotid gland and is dissected back for an inch out of the gland. The mobilized nerve can be retracted downward and the parotid gland retracted backward to expose the origin of the masseter muscle from the lower border of the zygomatic arch. The central third of this section of the masseter muscle is incised

Left: The zygomatic branch of the facial nerve lies along a line from the lower attachment of the pinna to the pupil of the eye. The skin incision runs forward horizontally along the lower border of the zygomatic arch from the tubercle of the root of the zygoma. Right: Exposure of neck of condylar process. The head of the condyloid process is not visible



and retracted downward to expose the base of the condylar process (illustration, right).

The head of the condyloid process, being dislocated upward into the infratemporal fossa, is not at first visible, but can be brought down into view on the articular eminence. The fibrocartilage is behind the dislocated condyle.

Intermaxillary fixation is used postoperatively. Cap splints are applied before operation to avoid redislocation in the immediate postoperative period.

E. & S. Livingstone Ltd., Teviot Pl., Edinburgh, Scotland

Clinical experience with supravital staining in surgery of the parotid gland

David W. Robinson, Frank W. Masters and Herbert J. Forrest. *Surg.Gynec.& Obst.* 110:121-122 Jan. 1960

Since staining of the parotid gland as an aid in surgery of the parotid region was developed in 1956, the procedure has been tried in 37 operations. The sharp color contrast aids in differentiating normal gland tissues from pathologically changed tissue, thereby facilitating the finding and dissection of the facial nerve twigs. Partial removal of a tumor with a wide core of surrounding normal gland tissue can be accomplished faster and more accurately, and superficial lobectomy is easier. Total parotidectomy is simpler.

The staining technic is initiated immediately after endotracheal intubation for anesthesia. The parotid duct orifice is dilated by the use of nasolacrimal duct probes no. 00, 0 and 1. Polyethylene tubing no. 22 gauge is introduced 1 to 3 cm. into the papillary opening and held in place by the use of a smooth thumb forceps or a small hemostat. A sterile 1 per cent aqueous solution of methylene blue is injected via a 5 cc. syringe attached to the tubing by a no. 22 needle. The solution should be injected slowly and easily over a period of 20 to 30 seconds. About 3 cc. will distend the gland moderately, and this amount usually is enough to stain the gland adequately. On withdrawal of the tubing, a dry gauze 4 by 4 inch sponge, folded in two directions to make a thick square, is placed over the duct opening. The preparation of the skin and draping of towels can follow immediately. During this five minute period required to prepare the operative field, the methylene blue is fixed by the gland, and no longer will spill and stain adjacent tissues.

After forward reflection of the skin and subcutaneous tissues, the normal parotid gland appears definitely blue. The part of the gland containing a pathologic structure, usually tumor or cyst, is not stained. The facial nerve branches maintain their white color and can be differentiated readily from the gland. Cross-cutting the blue-stained gland does not discolor adjacent tissue. Some blue dye on the dressings immediately over inserted drains will be present for a day postoperatively but the methylene blue is readily absorbed by the blood stream. The urine may be green or blue for 24 hours if only a small resection has been performed. The dosage is too small to produce any systemic symptoms or signs. In only two patients was the staining procedure a failure, because the ducts were blocked near the orifices.

University of Kansas Medical Center, Kansas City, Kan.

Bone repair after experimentally produced defects

Henry B. Mazorow. *J.Oral Surg.,Anesth.& Hosp.D.Serv.* 18:107-115 March 1960

Three methods for the removal of bone in oral surgical procedures were evaluated as to time required to remove bone and the speed of healing postoperatively. The instruments used were an Impactor engine-driven mallet with an attached high carbon steel chisel, a Cavitron ultrasonic instrument with a no. 15 Bard Parker knife blade, and a Weber air turbine unit, a superspeed rotational instrument with a no. 59 carbide smooth fissure bur.

In this controlled experiment in dogs, equal specimens of bone from the mandible, below the apexes of the teeth, were removed with each instrument. Specimens were taken two days, two weeks and eight weeks after surgery, to appraise the healing process.

Each complete surgical procedure from the initial incision to the final closure took about 15 minutes. The average time of bone removal with each instrument was as follows: (1) air turbine

unit, 25 sec.; (2) engine-driven mallet, 40 sec.; and (3) ultrasonic device, 139 sec.

The air turbine instrument has all the necessary qualifications for removing bone; it is gentle in its action and extremely precise.

A smooth surface is conducive to repair. Since the smoothest surface and best repair occurred when the bone was removed with a rapidly revolving smooth fissure bur, the air turbine unit is undoubtedly the instrument of choice. In contrast, the rapidly vibrating Bard Parker blade used with an ultrasonic device produced the most lacerated surface as shown by the wide basophilic zone. The subsequent repair was inhibited.

The results achieved by the use of an engine-driven mallet lay somewhere between those achieved with the other two instruments, as measured by the surface roughness. In addition, the mallet produced fragmentation of the bone.

125 West Twenty-first Street, Lorain, Ohio

Physical therapy of idiopathic facial paralysis

H. J. Hofmann. *Med.Klinik* 54:1665-1667 Sept. 4, 1959

Idiopathic facial paralysis was first described by Sir Charles Bell, a Scotch physiologist, in 1821. Bell's original series of case reports, however, did not consist exclusively of a description of the specific disease entity, now often called Bell's palsy.

Although the seventh cranial nerve may be paralyzed by trauma, pressure, tumor or infection, or as a part of the polyneurotic syndrome, the most frequent occurrence is that of idiopathic (peripheral or rheumatic) facial paralysis of an undetermined etiology. Edema or inflammation of the facial nerve has often been implicated, but never proved. The involved side of the face becomes immobile, smooth and expressionless. The duration of the disease varies from two weeks to six months, depending on the extent of damage to the nerve. The prognosis for complete recovery is favorable in about 75 per cent of instances within from two to three months. Partial recovery can be expected if complications in the form of contracture and hemifacial spasms occur.

The diagnosis usually is not difficult and can be made by dental or medical practitioners after studying the patient's history, making oral and physical examinations and electrical tests. If complete denervation is found, recovery will be delayed for from four to six months, and will be incomplete in most instances. If signs of innervation are present, adequate recovery after physical therapy should be obtained within from eight to ten weeks.

Physical therapy should consist of localized diathermy, electrical stimulation, gentle massaging, carefully controlled exercise of the facial musculature and splinting.

To splint the paralyzed muscles, adhesive tape is attached to the lateral forehead and extended down in a V-shaped fashion to the upper and lower lips. The splints made of acrylic resin may be anchored at complete or partial dentures. As the function of the involved facial muscles returns gradually, the patient should perform daily exercises before a mirror utilizing actively all of the facial movements.

In the chronic stage of the disease, when there has been failure of adequate recovery after at least one year, plastic surgical procedures may be considered in an attempt to restore esthetic appearance and to produce reanimation of the face. These surgical interventions may involve the use of facial slings fastened to the corners of the mouth and attached to the masseter or temporal muscles, or the reinnervation of the facial muscles by surgical anastomosis of the distal portion of the facial nerve with the proximal portion of the spinal accessory branch or the hypoglossal cranial nerve after section of the facial nerve. These surgical procedures may permit the development of new patterns of facial movement, but the results are unpredictable.

Physical therapy in most instances is the method of choice, and success depends on an early diagnosis and initiation of treatment (including avoidance of exposure to cold), as well as on preventing irreversible damage to the facial nerve. Surgical intervention can be recommended only as a last resort.

Balneological Institute of the University of Munich, Germany

Roentgenology

The simplest radiographic analyzer: the x-ray checker

William Ward Wainwright and
Andrew A. Villanyi. *J.South.California D.A.*
28:122-125 April 1960

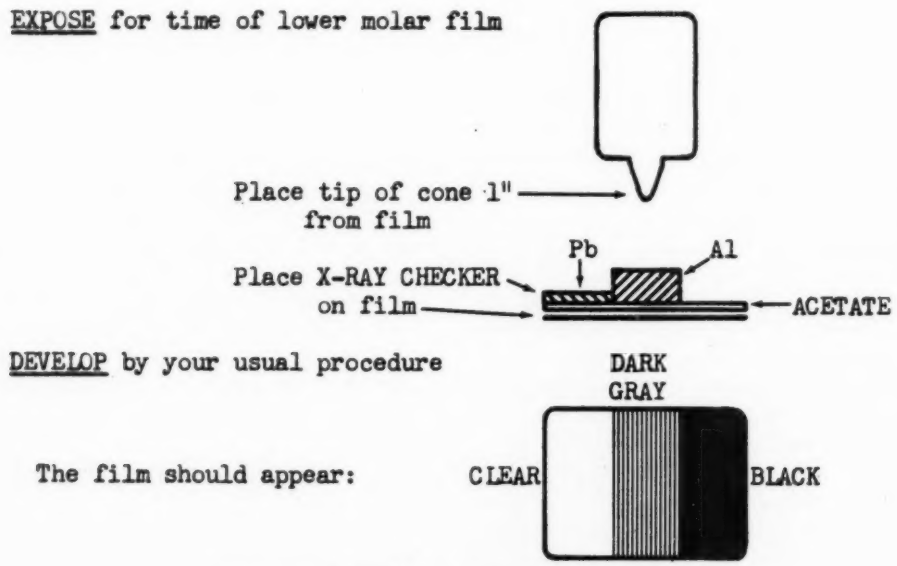
A simple, easy-to-use "x-ray checker" enables the dentist in just one exposure to pinpoint any difficulties in processing ultrafast film.

The roentgenogram analyzer is made of small pieces of aluminum, lead and plastic. The center consists of no. 1100 aluminum, 4 mm. thick. Since this pure grade aluminum is available in a thickness of 2.06 mm., two pieces measuring 9/16 inch by 1¼ inch are stacked and fastened with household cement to the center of an acetate base 1/32 inch thick and measuring 1¼ inch by 1¾ inch. This size covers a dental x-ray film. The third part is a piece of lead 1/32 inch thick and measuring 9/16 inch by 1¼ inch, cemented to one end of the acetate as shown in the illustration.

The three parts of the analyzer are: a total absorber (lead), a specific absorber (aluminum), and air. The clear area under the lead tests for fog. The dark gray area under the aluminum tests for density of image. The black area (air) checks for adequacy of development.

In use, a dental film packet is placed under the analyzer. The tip of the cone of the x-ray unit is brought to a distance of 1 inch from the film, as shown in the illustration. The film is exposed for the time used for the lower molar projection. The resultant film should appear as in the illustration—clear under the lead, dark gray under the aluminum, and black under the free portion of the acetate base.

If the clear area is gray, the dentist should examine the safelight to see if it has a Wratten no. 6B filter, or if the filter leaks white light. The wattage of the safelight bulb should not exceed 4 watts per foot of distance from the film as it is handled. If the clear area of the film is gray and the safelight is proper, the room should be examined for light leaks. Any leaks via keyholes and cracks should be sealed. If the clear area is gray,



Construction and technic for using the "x-ray checker"

although safelight and light leaks have been checked, the film should be checked for fogging caused by age and storage conditions. Ultrafast film begins to show fog after improper storage within three months. Film should be stored at 50°F. or below, in a dry atmosphere.

When the exposure time and processing are correct, the dark gray area will be of constant density for all kilovoltages, milliamperages, cone lengths, emulsion speeds and proper developers. Viewed on an illuminator, the color of the dark gray area should be similar to that of old lead. If the dark gray area is too dark, the dentist should check for overexposure, or for overdevelopment as from warm solutions in summer. If the dark gray area is too light, the dentist should check for underexposure or underdevelopment, perhaps from too cold developer, too short a time of development, diluted developer, or developer contaminated by fixer dripped in it.

The full benefits from the analyzer can be obtained only when the film manufacturer's recommended developer formula, time and temperature are used. Since the dark gray area on the film will be constant for all technics, the roentgenogram analyzer may serve as a standardized substitute for a patient. With it, tests of new technics or determination of exposure time for a new film can be made before exposing a patient to roentgen rays. The exposure time for the new film should be adjusted until the density of the dark gray area matches the dark gray area of a previous film taken using a satisfactory technic.

If the black area is gray, the developing process should be checked. The developer may be too cold, or the developing time too short, or the developer may be exhausted, diluted or contaminated with fixer. Another cause of grayness in the black area is using an out-of-date film.

8441 Yukon Trail, Canoga Park, Calif.

Evaluation of the integral absorbed dose in diagnostic roentgenography

I. K. Reinsma. *M.Mundi* 5:41-46 Oct.-Dec. 1959

All ionizing radiation other than that of natural origin increases the frequency of certain biologic effects in man. This constitutes a danger for individuals, population groups and mankind in general. There is a growing awareness of these dangers by the dental and medical professions as well as by the general public. It is not surprising that primary attention is given to the somatic effects of ionizing radiation in producing or promoting the development of leukemia, malignant tumors, mutations of cells and genes, and a shortening of life.

The genetic effects in man exerted by ionizing radiation can be evaluated only to a certain extent by studies continued to include several generations. In such studies the results should be determined on the principles of the calculation of probability. Recent research was based mainly on the genetic effects of irradiation in *Drosophila melanogaster* (banana fly), mice and other experimental animals with a rapid reproductive cycle. It may be assumed that on the basis of the experimental results the genetic effects of ionizing rays on man can be estimated.

Internationally the term "roentgen" was defined as a unit yielding roentgen rays, at the International Congress of Radiology in Stockholm, 1928. At the Congress in Chicago, 1937, it was accepted that the definition of roentgen as a unit also applies to gamma ray radiation. The definition of the term "rad" as a unit of the absorbed dose (absorbed energy per gram of the irradiated substance) was accepted at the International Congress of Roentgenologists in Copenhagen, 1953, apart from the roentgen as a unit of the exposure dose (one quantity of the radiation field).

The report of the United Nations Scientific Committee on the Effects of Atomic Radiation (1958) included the following statements:

"The radiation to which human beings are exposed from natural and man-made sources are similar in their physical nature and in the quality of their biologic effects. Radiation from both sources must be taken into account when assessing the present and future effects on man and his environment.

"Although there exists a large body of information concerning the effects of irradiation, it is apparent that present knowledge is still insufficient. It is in no way comparable to the knowledge of the physics of radiation or of the biologic effects experienced with many diseases.

"There exists some knowledge of the biologic effects caused by exposure to large doses of radi-

ation, but there is little known about the possible effects on man of intermittent small doses or of low levels of continuous irradiation."

There is growing interest in methods for determining the integral absorbed dose during each dental or medical diagnostic investigation. The integral absorbed dose is the total energy imparted to the patient. In diagnostic roentgenography, nearly all the energy of the roentgen-ray beam is absorbed by the patient. This energy is the product of the intensity, the cross sectional area of the beam and the exposure time.

An instrument was designed at the Philips' Gloeilampenfabrieken in Eindhoven, The Netherlands. It consists of a flat ionization chamber placed between the diaphragm and the patient, which is large enough to cover the wide radiation field used in diagnostic roentgenography. The current from the ionizing chamber is fed into an integrating electrometer measuring small differences of the potential (up to 0.95 volt).

Special measures have been adopted to determine the integral absorbed dose during routine diagnostic, dental or medical, roentgenographic examinations whether or not varying qualities and quantities of radiation have been applied.

The results of these measurements are given in tables and include those obtained in 11 dental patients who had received 5.3 r (mean exposure dose) and a total of 2.8 rad per kilogram (mean integral absorbed dose) as well as those obtained in two orthodontic patients (cephalometric measurements) who had received 27.5 r (mean exposure dose) and a total of 7.5 rad per kilogram (mean integral absorbed dose).

Physicotechnical Laboratorium, N. V. Philips' Gloeilampenfabrieken, Eindhoven, The Netherlands

Use of dental x-ray machines and associated radiation exposures in Massachusetts, 1958-1959

S. P. Scavotto, E. W. Flynn, A. Maitland and W. D. Wellock. *Massachusetts D.Soc.J.* 9:9-11 Jan. 1960

The radiation protection committee of the Massachusetts Dental Society in 1958 and 1959 made a continuing survey on the use of 800 dental x-ray machines. Suggestions regarding each of the machines observed were made, aimed at reducing radiation exposure of patients and dental office personnel.

The average number of films taken per week per machine is 80.

When the findings on the first 100 x-ray units surveyed in the spring of 1958 were compared with the findings on the last 100 x-ray units surveyed in the fall of 1959, it was found that:

1. The percentage of units with less than 1.5 mm. of aluminum filtration (or the equivalent) had fallen from 40 per cent to 25 per cent.
2. The percentage of machines with inadequate collimation had dropped from 58 per cent to 34 per cent.
3. The use of fast and very fast films had risen from 14.2 per cent to 38.1 per cent.
4. The milliampere-minute work load average had dropped nearly 50 per cent in two years.
5. The dose to the patient had been reduced by more than 50 per cent.

Three per cent of Massachusetts dentists now are believed to be receiving an occupational dose in excess of the limits recommended by the National Committee on Radiation Protection.

399 Belgrade Avenue, West Roxbury, Mass.

Anesthesia and analgesia

Synergistic basal narcosedation: a basic technique employing promethazine, meperidine, and secobarbital

A. Norman Cranin and Samuel L. Cranin.
Oral Surg.,Oral Med.& Oral Path. 10:176-187 Feb. 1960

An elastic technic for narcosedation of the ambulatory dental patient was developed as the result of a clinical trial of five methods for preanesthetic medication in 252 patients, divided into five groups. Group 1 received secobarbital alone; Group 2, meperidine hydrochloride alone; Group 3, promethazine alone; Group 4, meperidine and promethazine, and Group 5, a combination of promethazine, meperidine and secobarbital. All medications were administered intravenously. Observation of patients after administration of the various medications led to the conclusion that the drugs used for Group 5 provided ideal narcosedation.

The procedure is begun with the institution of an intravenous infusion of 500 cc. of isotonic sodium chloride solution. A primary or induction dose is introduced in the tubing; a dose of 100 P-M units (1 mg. of a mixture of promethazine and meperidine containing up to 50 per cent of promethazine = 1 P-M unit) has been established arbitrarily for the average 150 pound adult. An observation period of five minutes to evaluate the results should follow the primary dose. Generally at this point the patient will report that he feels sleepy and cannot keep his eyes open. However, he is readily arousable and responsive to painful stimuli.

To gain the desired stage of sedation and amnesia, as much as 150 P-M units may be required. For hypnosis, however, secobarbital sodium should be injected into the infusion tube at the rate of 50 mg. per minute. After each dose of 50 mg., two to four minutes should be spent in observing the patient before more secobarbital is added. As promethazine enhances the activity of the barbiturates, each dose of secobarbital probably will exert twice the usual pharmacodynamic action. Usually, small P-M doses with secobarbital support are sufficient; 80 to 100 mg. of secobarbital will induce a deep hypnoamnesic state. Administration of a local anesthetic in most instances completes the preparation for operation.

No ambulatory patient should receive more than 150 P-M units in addition to 100 mg. of secobarbital sodium. If, after medication in this amount, the patient still is restless, that is, if he mumbles and casts his head and extremities about in a disturbed or impatient fashion, he is considered refractory to the technic and inhalation anesthetic should be employed.

It is rarely necessary to carry the technic past the basal level at which point regional anesthesia is employed. When the surgical plane is desired, nitrous oxide-oxygen in equal proportions usually will suffice.

This technic provides one of the easiest and safest methods possible. There is little or no alteration of the vital signs. Respiratory embarrassment does not occur when a patent airway is maintained with good suction and a well-placed pharyngeal pack is used.

A minimum of 90 minutes is available for the operation, and the patient can become ambulatory in two to two and a half hours from the time of the initial injection. The technic makes the patient so labile to anesthetics that subtle changes of the oxygen flow will either deepen the plane of anesthesia or bring him out of the anesthetized state with ease, even after operations of two and three hours' duration. Most patients will react promptly to administration of 100 per cent oxygen through the nasal inhaler. Total recovery time averages seven to eight hours, during which the patient usually "sleeps off" the narcosedation at home.

Side effects were limited to itching of the nose and eyes, drowsiness, reduction in salivation, and, in one patient, a transient phlebitis.

Seventy-one patients have undergone dental procedures successfully after they had received intravenous basal narcosedation with the three agents described.

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Therapeutics

Ataraxics

American Dental Association,
Council on Dental Therapeutics.
Accepted Dental Remedies 25:54-55, 1960

A number of so-called "tranquilizing" or "ataractic" drugs have been promoted for use in premedicating the apprehensive dental patient. Although these drugs differ widely in their principal pharmacologic actions, they all possess the ability to produce some degree of sedation.

Few of these drugs, if any, have been subjected to rigorously critical clinical trials under the conditions of their anticipated use in dentistry. An accurate evaluation of the inherent usefulness of these drugs, therefore, is extremely difficult.

Individual dentists have observed that the administration of a placebo to the apprehensive patient and the display of a sympathetic and confident attitude on the part of the dentist often accomplish the purpose for which the "tranquilizers" are employed.

The determination of changes in the emotional state of the patient is so highly subjective and the symptoms are so variable and so responsive to numerous factors in the environment that only the most scrupulous attention to the design and execution of a clinical study can be expected to permit definitive conclusions regarding the inherent usefulness of "ataraxics" in dentistry. A further possible source of confusion in clinical observations is revealed by a prescription survey which indicated a widespread and continued use of the "tranquilizing" drugs in ambulatory patients. This also suggests the possibility of duplication of medication unless an adequate medical history is obtained from each patient.

Drugs suggested for use in dentistry for their tranquilizing effect include some of the phenothiazine derivatives, Rauwolfia, alkaloids, meprobamate, mephenesin and hydroxyzine. The phenothiazine derivatives are believed to be among the more potent but, with the possible exception of promethazine, also the more hazardous drugs for administration to ambulant patients. Promethazine is a potent antihistaminic drug with considerable sedative effect. Its use appears to be associated with fewer adverse reactions than have been experienced with other members of the phenothiazine group.

Rauwolfia alkaloids are believed to be generally unsuited for use in dental practice because of the relatively long period of administration required to obtain substantial effects. The overall toxicity of meprobamate is low but extensive experience with this drug has led to the recognition of a number of serious side effects attributed to its use. Meprobamate is reported to be one of the most frequently prescribed drugs and its further use in the dental office raises the question of possible duplication of administration. Mephenesin has been employed more frequently for its muscle relaxant effect, especially in children with cerebral palsy.

At present, the use of ataractic drugs in dentistry for premedication is regarded as empirical. Some of the phenothiazine derivatives may be useful for postsurgical administration and for hospital dental practice. The status of these drugs is under continuing review by the Council on Dental Therapeutics of the American Dental Association.

222 East Superior Street, Chicago 11, Ill.

Does Vaseline produce carcinogenic effects?

Deut.med.Wschr. 84:2306 Dec. 18, 1959

Q.—Is there any evidence that Vaseline causes malignant changes?

A.—Vaseline, a proprietary term for petroleum jelly (vaselinum album or flavum), often is topically applied when local action rather than absorption is desired. There is no evidence that yellow petroleum jelly, whether used topically or as a vehicle in certain pharmaceutic agents, has produced carcinogenic effects in man. In experimental animals, however, subcutaneous injection of vaselinum flavum produced a comparatively mild carcinogenic effect; one malignant tumor

developed in 34 rats. Because it is known that rats are susceptible to certain substances which have been found harmless in man, the result of this study can be considered as being negative, because Vaseline never is injected therapeutically in man. It is absolutely safe to use Vaseline whenever indicated, also as a protective coating for dental and surgical instruments. Repeated topical application of Vaseline may lead to acanthosis, but this condition cannot be considered as precancerous.

Grosse Eschenheimer Strasse 39, Frankfurt/Main, Germany

Maxillary osteomyelitis in infants

Terance A. Brand. *Brit.M.J.* No. 5175:799 March 12, 1960

In the past six years the author has treated six infants with osteomyelitis of the maxilla. In four instances, the disease occurred within 12 months during a peak period of cross infection in overcrowded neonatal nurseries. All these infections were found to be due to *Staphylococcus pyogenes* var. *aureus*. The fulminating character of the onset was most noticeable; rarely did more than 24 hours elapse before the full picture of the disease became apparent.

All patients were treated with prolonged systemic antibiotic therapy of some months' duration. Locally, antibiotics were applied to the nares but not into the affected cavities. None of the patients treated has so far shown any evidence of facial deformity. One baby showed some irregularity of eruption of the deciduous teeth on the affected side.

Intensive efforts to reduce cross infection in the neonatal nurseries apparently have met with success, as only one instance of osteomyelitis, one of pneumonia and a few minor skin infections have occurred in the same nurseries in the last 18 months.

As stressed by Florence Cavanagh (1960), any serious infection developing in the first few months of life in a baby born in a hospital may well be due to a hospital type of resistant micro-organism.

Royal Gwent Hospital, Newport, Monmouthshire, England

Principles and application of enzymatic wound debridement in dentistry

Anthony W. Gargiulo and Harry Staffileno. *J.D.Med.* 15:21-25 Jan. 1960

The enzymatic debridement of wounds has been used successfully by physicians in the treatment of tuberculous empyema, ocular diseases, cellulitis, abscesses, thrombophlebitis, wound infections, burns, amputation stumps, gangrene and osteomyelitis.

To investigate the usefulness of proteolytic enzymes in the oral cavity, 95 patients with oral lesions or wound surfaces that were externally necrotic, infected and had a fibropurulent exudate, were treated. An enzyme ointment or an enzyme powder was used. The formula for the powder was: trypsin, 100,000 angstroms; zinc bacitracin, 500 angstroms, and neomycin palmitate, 2.5 mg. bone. The formula for the ointment was: trypsin, 5,000 angstroms; chymotrypsin, 5,000 angstroms; polymyxin B sulfate, 5,000 microns, and bacitracin, 500 microns.

Initially, the commercially prepared enzyme ointment was incorporated in the periodontal surgical dressing of zinc oxide-eugenol. This proved uneconomic because great quantities of the material were necessary, and only the enzyme in the dressing adjacent to the wound surface was active in debriding the wound. A second method which proved advantageous involved the use of an 18 gauge needle attached to a 5 cc. Luer-Lok syringe. The point of the needle was blunted and a 45 degree bend was made in the needle. The ointment was put into the syringe from which it could be ejected onto the wound surface with care and control of the quantity needed. After application, the ointment was allowed to set about five minutes and then the periodontal dressing was applied over it. This method of application proved satisfactory.

The powder was contained in a polyethylene squeeze bottle with a fine-pointed spout. The powder could be sprayed on the lesion or wound surface.

Controls were used by having one arch dressed with the enzyme ointment or powder and the opposing arch dressed without enzyme. Also, the lesions in one patient would be dressed using the enzyme preparation and the lesions in the next

patient would be dressed without using the enzyme preparation.

The enzyme-antibiotic ointment or powder had a pronounced beneficial effect on the wound surface of many types of oral lesions. On 50 patients who had undergone gingivectomy, with the use of the enzyme-antibiotic preparations the wound surface was well-healed after two redressings in a period of about 14 days. The surface necrosis was almost entirely removed and inflammation was reduced. Granular tissue proliferation, which often is encountered, was almost totally absent. The wounds looked pink, with slight granulation tissue covering the surface. The untreated side showed a covering of necrotic debris and the granulation tissue appeared red. Generally, the enzyme-antibiotic preparations reduced healing time by from five to seven days. The powder and the ointment appeared equally effective.

1757 West Harrison Street, Chicago 12, Ill.

Vitamin administration in dental practice

Karl Heinz Rinne. *Zahnärztl.Rundschau* 69:15-18 Jan. 8, 1960

In modern dentistry, the use of caustic substances is decreasing, and their replacement by supplemental administration of vitamins to the regular diet has often been suggested in dental literature.

Vitamin A is necessary for maintenance, regulation and function of the mucosal epithelium. Deprivation of this vitamin leads to atrophy of the epithelial cells and is conducive to susceptibility to local bacterial infections of the oral cavity. Vitamin A deficiency frequently occurs during pregnancy, puberty, menopause and senescence. Administration of comparatively large doses of vitamin A (100,000 units) has been found beneficial in the treatment of leukoplakia of the tongue, lips, inner cheeks and fauces.

Administration of vitamin B complex obtains cure or, at least, significant improvement in glossitis, stomatitis, pellagra, oral reactions to antibiotic therapy, and periodontal disease. Vitamin B_1 (thiamine), as a supplement to the normal diet (0.5 mg. for each 1,000 calories of food intake), is a valuable adjunct to the treatment of facial paralysis, gingivitis, stomatitis, glossitis and glossalgia. Vitamin B_2 (riboflavin) has less importance in dental practice than most other members of the vitamin B complex. It may be used in the treatment of rhagades at the angle of the mouth, glossitis, burning sensations of the tongue, and erythema associated with geographic tongue.

Nicotinamide plays an important part in prevention and treatment of pellagra in which oral manifestations are significant diagnostic symptoms. Pantothenic acid, another member of the vitamin B complex, provides rapid healing of oral lesions associated with glossitis and cheilosis, and should be used in instances in which administration of other vitamins has proved to be ineffective.

Vitamin C (ascorbic acid), administered in daily doses of 75 mg., has a delaying effect on the recurrence of inflammations in the oral cavity. Deficiency of ascorbic acid produces scurvy, pathologic changes in the gingivae, hemorrhage of the capillaries and tooth loosening. Daily doses of 1 Gm. of ascorbic acid are indicated in the treatment of chronic gingivitis, hypertrophic gingivitis (combined with vitamin E), desquamative gingivitis (combined with vitamin A), ulcerative gingivitis, ulcerative stomatitis (combined with pantothenic acid), aphthous stomatitis (combined with pantothenic acid), and epidemic stomatitis (combined with pantothenic acid).

Vitamin D_2 (calciferol) provides an adequate supply of calcium and inorganic phosphorus (phosphate), required during the growth and development periods of children, and for the mineral metabolism of pregnant women. This vitamin also counteracts the effects of enamel decalcification.

Vitamin E (alpha, beta or gamma tocopherol) has proved to be useful in the treatment of periodontal disease, especially periodontosis, because it promotes the formation of collagenous and elastic fibers in the periodontium.

Vitamin K_1 (phytonadione) in intravenously injected doses of from 15 to 25 mg. controls postoperative hemorrhage within three hours and produces a normal prothrombin level within 12 hours.

The administration of multivitamin preparations in dental practice may lead to untoward side effects associated with polypharmacy.

Neuköllner Strasse 310, Berlin-Rudow, Germany

Periodontics

Ten years of tooth-mobility measurements

Hans R. Mühlemann. *J.Periodont.* 31:110-122 April 1960

A decade of research utilizing measurements of tooth mobility has increased scientific knowledge concerning the effect of systemic or local influences on the periodontal structures, abnormal masticatory function and occlusal trauma. The tooth offers a unique opportunity for the in vivo evaluation of biophysical alterations of supporting tissues.

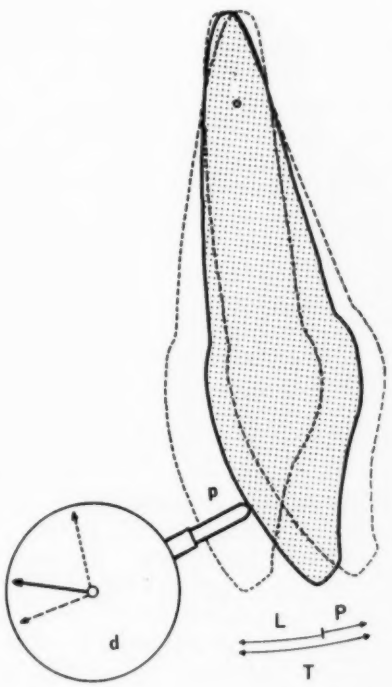
In periodontometry (the measurement of tooth mobility), two measuring devices have been developed: (1) the macroperiodontometer, used for measurements of horizontal mobility of incisors, cuspids and first bicuspids, preferably in the upper jaw, and (2) the microperiodontometer, used for mobility measurements of all teeth, especially of molars.

The principle of mobility recording is similar in both instruments (see illustration). The instruments differ only in size and accuracy. Macroperiodontometry is easily learned and reproducibility of the results is high. A dial indicator is mounted on an impression tray and adapted with the indicator's pointer to the labial or buccal surfaces of the tooth whose mobility is to be measured. Measurements are in hundredths of millimeters. The labiopalatal or palatolabial deflections of teeth are made by a known force, using a force meter. Periodontometry also has been used in reversed application, to determine the magnitude of oral muscle forces transmitted to the crowns of teeth.

Tooth mobility is greater in children and young adults. It is slightly greater in females than in males, and it increases considerably during pregnancy. Mobility values fluctuate during a 24 hour period, mobility being lowest in the evening and highest in the morning, just after the subject awakens. A pathological increase in mobility is caused by a qualitative change in the biophysical state of periodontal tissues, or loss or destruction of periodontal structures.

Two case reports illustrate the diagnostic value of periodontometry.

Tooth mobility measurements permit an objective evaluation of the effect of various therapeutic procedures. In one experiment it was found that tooth mobility decreased about 11 per cent in patients whose teeth had not been splinted,



Principle of mobility measurements: d, dial indicator; p, pointer; L, labial deflection of crown; P, palatal deflection of crown; T, total excursion

whereas tooth mobility increased in patients whose teeth had been splinted. Twenty months later, tooth mobility had decreased in both groups of patients.

Zürichbergstrasse 4, Zurich, Switzerland

A new periodontal pack

Peter Eberle and Hans R. Mühlemann. *Schweiz.Mschr.Zahnhk.* 69:1095-1101 Dec. 1959

The benefits obtained by using periodontal packs to accelerate the repair of alveolar and gingival tissues after surgical interventions have been described frequently in the literature.

Gottlieb and Orban (1936) reported that a paraffin pack applied postoperatively facilitates the healing of the gingival epithelium, connective and osseous tissue after surgical elimination of periodontal pockets.

Orban and Archer (1945) studied the dynamics of wound healing after application of a paraformaldehyde (cauterizing) pack without any additional postoperative medication, and found that inflammation or infection did not occur whether gingival pockets had been removed or gingivectomy performed.

Bernier and Kaplan (1947) studied the effects of a periodontal pack containing zinc oxide, resin, eugenol and almond oil, left in place for ten days, on the inflamed apical and periodontal tissues of patients with clinically and roentgenographically diagnosed advanced periodontitis. The histologic examinations indicated that the application of such a periodontal pack on the exposed wound surfaces facilitated the healing process after every kind of surgical intervention.

Although it can be assumed that the constituents of a periodontal pack are only of secondary importance, packs containing eugenol frequently produce allergic reactions (aphthae) and have an unpleasant taste. Since 1957, a periodontal pack containing calcium sulfate, zinc oxide, aromatic oils and dyes, but no eugenol, is used routinely at the Dental Institute of the University of Zurich, Switzerland. This pack, used in more than 500 patients with periodontal disease, provided adequate protection against postoperative infection and a rapid repair of gingival wounds. In its plastic state, the pack is ready for immediate use, and it hardens gradually after being exposed to saliva. It has a pleasant taste and produces neither irritative nor allergic reactions.

The new periodontal pack has been extremely beneficial in acceleration of healing after the following surgical interventions or conditions: (1) gingivectomy or gingivo-ectomy, used as a wound dressing; (2) deep curettage, used either as a pressure dressing or protective dressing; (3) reattachment, used as a protective dressing; (4) elimination of ulcerative or necrotizing gingival lesions, used as a wound dressing containing also antibiotic agents; (5) removal of chronic, recurrent gingival lesions, used as a wound dressing containing also astringents, antiphlogistics and disinfectants; (6) incisions and sutures, used as a covering dressing; (7) exposure and desensitization of the necks of teeth, used as a wound dressing containing also antibiotics; (8) multiple tooth extractions, used as a temporary lining before insertion of immediate dentures, and (9) any obscure oral wound, used as a dressing providing adequate asepsis.

The technic used in application of this pack is less complicated than that used in application of packs containing zinc oxide, resin and eugenol.

Zürichbergstrasse 4/8, Zurich, Switzerland

Treatment of periodontal disease with a new antibiotic agent: spiramycin

Beate Moeschlin-Krieg and André Schroeder-Buss. *Schweiz.Mschr.Zahnhk.* 60:96-108 Feb. 1960

Rovamycin is the proprietary name for spiramycin, a new antibiotic agent which was isolated and described by S. Pinnert-Sindico in 1954.

Spiramycin is a chemical substance, produced by *Streptomyces ambofaciens*, which has the capacity of inhibiting the growth of gram-positive microorganisms and of destroying pathologic bacteria such as staphylococci, streptococci, pneumococci and enterococci.

In the case reports of 18 patients with periodontal disease, treated at the Public Dental Clinic in Basel, Switzerland, it was demonstrated that spiramycin (2 Gm. per day orally administered) exerted a favorable effect on periodontal disease

of various forms (gingivitis, periodontosis and periodontitis) even in instances in which the inflammatory factor was of secondary importance.

The local treatment of the periodontal lesions (scaling and grinding of the teeth involved), however, was not replaced by antibiotic therapy; the application of spiramycin supplemented the customary treatment procedures.

In all 18 patients, the adjuvant use of spiramycin obtained a comparatively rapid alleviation of pain, acute inflammation and infection, associated with advanced periodontal disease. It proved to be effective in instances in which the disease had been caused by aerobic or anaerobic microorganisms resistant to penicillin and to other antibiotics used in dental practice.

Spiramycin, therefore, can be recommended as the first choice in the antibiotic treatment of periodontal disease when substitution for penicillin or other antibiotics is indicated. This recommendation is not based entirely on the experience with the 18 patients but also on previously published reports such as those by Dalignand and Pellerat (1956), Couturier (1958), and Hess (1958).

Toxicity reactions to spiramycin are comparatively mild and consist of nausea, vomiting and occasionally of diarrhea. Other adverse side effects such as skin eruptions, soreness of the mouth or the tongue and cheilitis were not observed in any of the 18 patients in this series after administration of spiramycin.

Rappoltshof 16, Basel, Switzerland

Periodontal disease and socioeconomic status in Birmingham, Ala.

Albert L. Russell and Polly Ayers. *Am.J. Pub.Health* 50:206-214 Feb. 1960

Previous field studies indicated that group levels of periodontal disease are associated in some manner with the social or economic status of the groups observed. The present study was designed to examine some of these associations in greater detail and to inquire whether the commonly-observed differences in scores between white and Negro groups represent a racial difference or can be explained on the basis of socioeconomic status alone.

The subjects consisted of 2,150 white and Negro persons ranging in age from 15 through 74 years, in Birmingham, Ala. Of these subjects, 1,854 were regularly employed at the time of the periodontal examination. None of the subjects was edentulous. The presence or absence of obvious oral debris was recorded for 700 white and 559 Negro subjects. The sample was neither random nor representative of Birmingham as a community. An effort was made to include as many persons of diverse background and occupation as practicable.

When factors were considered singly, it was found that:

1. Negroes showed higher periodontal scores (a greater incidence of periodontal disease) than whites.

2. Persons with lesser education showed higher periodontal scores than persons with higher education.

3. Persons with unmet needs for fillings showed higher periodontal scores than persons whose needs in this respect had been met.

4. Persons in the less-favorable occupational groups showed higher periodontal scores than persons in occupations higher in prestige and income.

5. Persons with obvious oral debris showed periodontal scores much higher than persons with mouths which were relatively clean.

When these factors were considered in combination, it was noted that:

1. Oral debris seemed to be the most deleterious factor of the several factors studied.

2. No differences between Negro and white groups of equivalent oral debris status could be demonstrated.

3. In spite of relatively clean mouths and adequate dental care, persons with lesser education continued to show higher periodontal scores than those with higher education.

When comparisons between groups or communities are required, it is necessary to study samples equivalent in socioeconomic status.

National Institute of Dental Research, Bethesda, Md.

Bacteriology

Modes of establishing fusobacteria, lactobacilli and streptococci in the human mouth

Masao Onisi, Kikuko Koike and Yoshimi Tachibana.
Deut.Zahn Mund Kieferhk. 31:159-169 Aug. 1959

Microorganisms appear in the mouths of infants immediately after birth or within the neonatal period. Later, numerous species of bacteria transmitted from the surroundings, especially from the mother's mouth and breast, establish the proper oral flora. A conspicuous change in the oral flora takes place at the time of the first eruption of a deciduous tooth. This change can be observed on smear preparations or in culture media of oral substances. This leads to the assumption that oral anaerobes such as spirochetes and fusobacteria appear in the oral flora after the eruption of the first deciduous tooth and disappear with the loss of the last permanent tooth in the mouths of aging persons.

Experiments, carried out at the department of oral microbiology of the Tokyo Medical and Dental University, showed that fusobacteria were present in oral swabs taken from the mouth of a two month old infant, when the specimens were enriched in an alkaline broth. Since this finding fundamentally diverged from the earlier conception, further investigation on the modes of establishing fusobacteria, lactobacilli and streptococci in human mouths was carried out.

Specimens consisted of 1,263 test materials taken from 1,039 oral swabs from 816 infants and children, from 1 to 15 months old, who were born at the Suginami West Health Center in Tokyo.

Members of the lactobacillus-streptococcus group, the earlier invaders, grow rapidly and reach the maximal cell population within a few days after birth. These microorganisms are transported from environmental culture media to the more suitable natural culture media of the oral cavity.

Fusobacteria, however, which may be called the late invaders, initially arrive in the oral cavities of infants and children just as passengers, failing to secure permanent residency during the early phase of adaptation. After from 4.3 to 8.5 months (which time may be termed the "period of dwelling"), the incidence of fusobacteria increases at a constant rate, provided for by the developing or erupting deciduous dentition. Fusobacteria are also found in the edentulous mouth of senescent persons, although in much smaller numbers.

The following terms are suggested to designate the ecologic phases of microorganisms invading the human mouth: (1) period of adaptation, from birth to the fourth month; (2) period of dwelling, from the fourth to the eighth month; (3) period of maximum growth, from the eighth month to maturity, and (4) period of decadence, from maturity to senescence and death.

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Anaerobes in the oral flora of infants

U. Berger, M. Kapovits and G. Pfeifer.
Zschr.Hyg.Infektionskr. 145:564–569 Nov. 1959

The oral flora of 120 infants was examined under the electronmicroscope at the Dental Clinic of the University of Hamburg, Germany.

Twenty-seven infants were less than two days old; 33 less than two weeks; 24 less than two months; 28 were about eight months old but showed no signs of tooth eruption, and 8 children were older than eight months but in the upper jaw both central incisors and one lateral incisor and in the lower jaw both lateral incisors had erupted normally.

Samples of the oral flora were taken before breakfast or at least two hours after feeding. The specimens were examined by using various methods of anaerobic cultures and by dark-ground illumination.

The results were as follows:

1. No relationship exists between tooth eruption and the presence of anaerobes in the oral flora.

2. *Veillonella alcalescens* were found occasionally in the oral flora of infants less than two days old, and regularly in those older than one week old, but obviously as nonpathogenic parasites. In blood agar colonies, these microorganisms produced a greenish pigment but no hemolysis. In deep agar colonies, they appeared first punctiform and later lenticular.

3. Other anaerobic species such as *Clostridium caproicum, Eubacterium minutum, Peptostreptococcus anaerobius, Peptococcus anaerobius* and *Peptococcus variabilis* were found, although in insignificant numbers, in the oral flora of infants older than five months.

4. Before tooth eruption, the mucous membrane of the tonsillar region appeared to be the site preferred by most anaerobic species.

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Effect of desiccated thyroid and thiouracil on dental caries experience of adult rats

Joseph C. Muhler and William G. Shafer. *Proc.Soc.Exper.Biol.& Med.* 102:327-329 Nov. 1959

Previous studies have shown that feeding desiccated thyroid to weanling rats reduces the incidence of dental caries and that the administration of either iodine [131] or propylthiouracil increases the incidence of caries. In this study, the relationship between thyroid activity and dental caries was studied in adult rats.

The feeding of propylthiouracil to adult rats resulted in a greater increase in the incidence of caries than occurred in weanling rats. The feeding of desiccated thyroid to adult rats did not reduce the incidence of caries.

Histologic changes in the thyroid and salivary glands of adult rats fed propylthiouracil or desiccated thyroid were similar to the changes found in weanling rats; that is, propylthiouracil resulted in extreme hyperplasia of the gland with increased cellularity and lack of colloid formation, and desiccated thyroid resulted in hypoplasia of thyroid glands with follicles lined by flattened cells and filled with colloid.

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Dietary fluoride related to fluoride content of teeth

C. G. Elliott and M. Doreen Smith. *J.D.Res.* 39:93-98 Jan.-Feb. 1960

Each of 42 permanent teeth extracted from children ranging in age from 8 to 17 years, in St. John's, Newfoundland, was separated into enamel and dentin, and the two fractions were analyzed for fluorine. The children in St. John's had been exposed to a high fluorine (fluoride ion) diet (tea, fish and bone meal).

The analytical results were compared statistically with results from similar assays of teeth from children living in various districts in Ontario where the diet was low in fluorine.

The teeth of the St. John's children contained significantly more fluorine than the teeth of children of the same age from Toronto and Sarnia, Ontario.

It was concluded that some of the fluorine present in the foods—tea, fish and bone meal—can be absorbed and retained in human teeth.

The amount of fluorine in the enamel of the teeth of children in St. John's did not increase after a certain age, or the increase was too gradual to be measurable. The amount of fluorine in the dentin of these same teeth did increase with the age of the child.

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Pathology

Acute postoperative parotitis ('surgical mumps')

Adolf W. Schwartz, Kenneth D. Devine and Oliver H. Beahrs. *Plast.& Reconstr.Surg.* 25:51-58 Jan. 1960

The more recent idea regarding postoperative parotitis is that the infection originates in the mouth and reaches the parotid gland by way of Stensen's duct, although blood borne or lymph borne emboli may be the causative agent in some instances. Patients with a dry mouth and poor oral hygiene have a much higher concentration of oral bacteria than do those with a clean mouth. Postoperative parotitis is most frequently encountered among generally debilitated patients suffering from dehydration, suppression of salivary secretion, vomiting and mouth breathing. Dry mouth is one of the main predisposing factors.

The acute pyogenic infection starts as a catarrhal inflammation of the large ducts. Their epithelium becomes eroded and this causes periductal infiltration, necrosis, and penetration into the glandular tissue. Multiple abscesses may form.

As a rule the causative agent is *Staphylococcus pyogenes* var. *aureus*. Alpha hemolytic streptococci mainly account for the abscess formation. The disease usually is reported in 1 of every 1,000 to 2,000 postsurgery patients. In a series of 83 patients seen at the Mayo Clinic from 1945 through 1958, in whom postoperative parotitis developed, 40 were men and 43 were women. In 20 per cent of the patients, the condition occurred bilaterally. Some authors have reported observing postoperative parotitis more frequently on the side on which the patient usually lies. In 21 of the 83 patients (25.3 per cent), both parotid glands were affected. The first symptoms in the parotid region occur between the second and the twentieth day after surgery.

The clinical picture is that of acute inflammation. The swelling first appears in front of the ear lobe (illustration), making that structure project at nearly a right angle from the skin, and then spreads to the entire gland. The onset usually is rapid and is accompanied at times by rather severe pain and tenderness over the gland. As the swelling enlarges, the skin becomes red and the patient may complain of a throbbing pain. In severe instances, the edema may involve the cheek, periorbital region and neck. Often the painful swelling causes difficulty in opening the mouth. The temperature rises to 102° to 104°F. and is accompanied by headache, malaise and leukocytosis. The region around the opening to Stensen's duct is swollen and red, and usually purulent material is readily expressed by gentle pressure along the duct. There is always a history of a preceding operation, extensive trauma or a prolonged illness.

A 34 year old patient in whom postoperative parotitis developed three days after partial duodenectomy and appendectomy

Treatment procedures include a bland diet, omission of citrus products and highly seasoned foods; application of ointment to affected skin and lips, and of warm or cold (moist) compresses, and increased oral or parenteral intake of fluid to improve salivation. Analgesics, antipyretics and a laxative will make the discomfort more tolerable.

Since most of the pathogenic microorganisms found in the purulent fluid from Stensen's duct will prove to be sensitive to penicillin, massive doses of this antibiotic should be started early, without waiting for reports on the cultures and the sensitivity studies. Lugol's solution, 20 minims every four hours, has been advised on the basis that iodine has an antiseptic value while being excreted from the salivary glands.

Mechanical stimulation by fluid irrigation of the oral cavity plays an important role in the prevention as well as the treatment of parotitis.

Roentgenotherapy is included as a standard measure in the treatment of secondary parotitis. The irradiation should be applied as early as possible in small suberythemic doses, which in most instances are sufficient to abort the infection and the formation of an abscess.

Surgical intervention is required only in the presence of an abscess. Incision of a parotid abscess is indicated in rare instances.

Before 1930, the mortality rate reported in the literature for patients with postoperative parotitis was as high as 50 per cent.

Fricke and Madding reported 190 cases of postoperative parotitis seen at the Mayo Clinic from 1927 through 1940, of whom 19 (10 per cent) died. A detailed study of the 19 fatal cases showed that death could be attributed to the postoperative parotitis in only 1 case; in the other 18 cases the postoperative parotitis played only a minor role.

From 1945 through 1958 at the Mayo Clinic, postoperative parotitis was diagnosed 83 times. Death occurred in 17 of these patients, but in only 1 patient was postoperative parotitis considered as a major complication contributing to the death. In this patient, a 62 year old woman, bilateral parotitis developed on the tenth postoperative day and extended as a cellulitis down the neck into the anterior mediastinum, causing death nine days later. All the 17 patients who died had a diagnosis with a grave prognosis ("poor surgical risk").

The decline in the incidence of postoperative parotitis at the Mayo Clinic is accounted for by improved anesthesia, shortened operative time, advanced surgical technic, better knowledge and handling of electrolyte and fluid balance, wider use of blood transfusion, better understanding of the etiology of the disease and the value of improved oral care, and better control of infections throughout the body with the aid of antibiotics and modern drugs.

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Classification of clinical syndromes, a guide for dental and oral diagnosis

Gottfried Schneider. *Deut.Zahnärzte Kal.* 19:146-167, 1960

Knowledge of the numerous syndromes which affect the maxillofacial region is becoming more and more essential for accurate diagnosis and differential diagnosis in dental practice. Only a thorough understanding of these symptom complexes permits evaluation and removal of the causative factors and, thereby, the proper management of dental patients with oral manifestations associated with syndromes.

Clinical syndromes of interest to dentistry may be classified as follows: (1) dysmorphic syndromes of the skull and the maxillofacial region; (2) dysostosis-osteopathy syndromes; (3) ectodermal and subcutaneous syndromes; (4) facial skin and oral mucosa syndromes; (5) salivary gland syndromes; (6) vitamin deficiency syndromes; (7) pain syndromes; and (8) paralysis syndromes.

Among the dysmorphic syndromes are the following:

1. Apert's syndrome, characterized by a pointed skull, high palate, and forked uvula palatina.

2. Bonnevie-Ullrich syndrome, characterized by skull defects, hypoplasia of the lower jaw, high palate, retarded growth and development of oral structures and other developmental defects.

3. Crouzon's syndrome (inherited craniofacial dysostosis), characterized by abnormal develop-

ment of the base of the skull, sphenoid bone defects, hypoplasia of the upper jaw and malposition of the anterior teeth.

4. Curtius' syndrome (inherited myotonia atrophica), characterized by myotonic disturbance of the masticatory function, enlarged upper jaw, dysplasia of the enamel, congenitally missing teeth and endocrinous disturbances.

5. Ellis-van Creveld's syndrome (chondroectodermal dysplasia), characterized by a smooth glossy facial skin, total absence of the sweat glands, congenitally missing teeth and tooth germs, enlarged chin, thick lips and union of the dental lamina with the upper lip.

6. Franceschetti's syndrome (mandibulofacial dysostosis), characterized by an antimongoloid slant of the palpebral fissures, hypoplasia of the facial bones, macrostomia, underdeveloped lower jaw, hypoplastic upper jaw with small maxillary sinuses, high palate, cleft palate, and rudimentary dental laminae.

7. Freeman-Sheldon's syndrome (craniofacial dystrophy), characterized by facioscapulohumeral atrophy, high palate, small mouth and extremely small skull.

8. Capdepont's disease (dentinogenesis hypoplastica hereditaria), characterized by defective calcification of the dentin, brownish-gray discoloration of the surfaces of deciduous and permanent teeth, fragile enamel, extreme attrition, small pulp chamber and hypercementosis.

9. Gregg's syndrome (embryopathia rubeolaris), characterized by delayed eruption of the deciduous teeth, hypoplasia of enamel, microcephalia, and disturbances of the central nervous system.

10. Greig's syndrome (hereditary ocular hypertelorism), characterized by brachycephaly, defects in the development of the jaws and tooth anomalies.

11. Grauhan's syndrome, characterized by cheilopalatognathus or cheilognathouranoschisis, and polydactylia.

12. Guerin-Stern's syndrome (amyoplasia congenita), characterized by ankylosis of the temporomandibular joint (and other joints), cleft lip, cleft jaw and cleft palate, hypoplasia of the lower jaw, and osteoporosis.

13. Hanhart's syndrome, characterized by unilateral cleft palate, retarded calcification of the teeth, delayed ossification, positional anomalies of the lateral incisors, senile appearance of the face, and recessive dwarfism.

14. Hertwig-Weyer's syndrome, characterized by oligodactylia, cleft lip, cleft jaw and cleft palate, tooth anomalies and developmental defects of the intermaxillary bone.

15. Klippel-Feil's syndrome, characterized by shortness of the neck, limitation of head movements, cleft palate, absence of several tooth buds, retarded tooth eruption, and presence of supernumerary teeth.

16. Marfan's syndrome, congenital and hereditary arachnodactyly, high palate, anomalies in tooth position, oligodontia, and bird-face.

17. von Pfaundler-Hurler's syndrome (lipochondrodystrophy), characterized by a lipoid disturbance of cartilage, bone, skin and subcutaneous tissue, enlarged skull, bulging lips, large tongue, cleft palate, grunting speech, and "gargoylism."

18. Pierre Robin's syndrome (congenital micrognathia with glossoptosis), characterized by hypoplasia of the lower jaw, cleft lower jaw, microglossia, habitual mouth breathing, incomplete bifid tongue, and closure of the glottis.

19. Scheutauer-Marie-Sainton's syndrome (cleidocraniofacial dysostosis), characterized by defects in ossification of the skull, underdevelopment of the face, hypoplasia of the upper jaw, supernumerary teeth, microdontia, delayed shedding of the deciduous teeth, positional tooth anomalies, prognathism, and malocclusion.

20. Ullrich-Feichtinger's syndrome (craniomandibulofacial dysmorphosis), characterized by micrognathia, cheilognathouranoschisis, enlarged oral cavity, and "maskoid face" with cat's ears.

21. Ullrich-Fremerey-Dohna's syndrome, characterized by trigonocephalia, hypoplasia of the lower jaw, microstomia, open bite, and bird-face.

22. Weyer's syndrome (acrofacial dysostosis), characterized by cleft lower jaw, micrognathia, microdontia, and pseudodiastema between the central incisors.

(Abstract to be continued in a future issue.)

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Isolated trigeminal neuropathy: report of 16 cases

J. D. Spillane and C. E. C. Wells. *Brain* 82:391-416 Oct.-Dec. 1959

Although isolated lesions of the trigeminal nerve are held to occur infrequently, 16 patients with such lesions were observed by the authors during the last seven years.

It can be assumed that the site of the lesion causing isolated trigeminal neuropathy may be at any part of the first sensory neuron of the fifth cranial nerve in its extrapontine course.

In 15 of the 16 patients the predominant lesion produced impairment of sensation in the region of one or more divisions of the nerve. The course of this degenerative noninflammatory disease tended to be favorable for recovery. Taste sensation was involved in some patients, and in others the fibers of the autonomic nervous system were affected.

In one patient there developed trophic destruction of the nose, xerophthalmia and xerostomia, in another both the motor and sensory functions of the maxillary division of the trigeminal nerve were involved. In both patients, the initial symptoms, which were sensory, extended rapidly throughout the regions of the second and third divisions on the left side. Within one week, the patients became aware of impairment of taste sensation and of muscular weakness on the same side of the face. Actual muscle degeneration soon became evident, and when the patients opened their mouths, the lower jaw deviated to the left side.

After these two patients were admitted to the hospital, seven weeks after onset of the disease, the process had already reached its peak, and improvement became observable three weeks later. Recovery thereafter was tedious but appeared complete within 12 months.

The evolution of isolated trigeminal neuropathy in the 16 patients of this series suggested a virus infection; although there were no signs of herpes zoster, the extensive sensory loss precluded a diagnosis of poliomyelitis, and the solitariness of the trigeminal lesion, together with the normal content of protein in the cerebrospinal fluid, made the presence of Guillain-Barré syndrome improbable. Similar cases have been reported in the literature under the term "monoplegia masticatoria."

Isolated trigeminal neuropathy must be differentiated from other nervous diseases which may encroach on the sensory pathways from the face. Replies to inquiries indicate that patients with similar neuropathies are seen from time to time in dental and neurological clinics. Many of these patients, however, are investigated for suspected tumors, and the negative findings on lumbar puncture and roentgenographic examination often prevent the correct diagnosis. Tumors of the gasserian ganglion or of the sensory roots of the trigeminal nerve and neurinoma of the peripheral divisions of the nerve as well as other tumors arising in or near Meckel's cavity constitute pathologic factors which must be considered in the differential diagnosis of isolated trigeminal neuropathy associated with paroxysmal pain extending the course of the nerve and causing extreme sensory disturbances.

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Fainting at the dental office

John B. Ross. *Science Digest* 47:27 March 1960

The patient who faints at the dental office would really like to run away. Fainting usually is a psychosomatic reaction to a possible unpleasant event. The patient would like to escape the elementary feeling which he associates with disagreeable or painful experiences. His organism responds with arrest of the blood supply to the brain by diverting blood to the muscles, causing loss of consciousness, paleness of the face, feeble respiration and weak heart beat.

After the occurrence of syncope at the dental office, social circumstances do not permit the patient to run away and he decides not to attempt an escape. By this time, however, a mild form of cerebral anemia has developed, often leading to a secondary temporary unconsciousness.

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Anthropology

Artificial deformations of the human skull

F. Falkenburger. *Deut.med.J.* 11:17-20
Jan. 5, 1960

Hippocrates, in chapter 21 of his work *About Air, Water and Places,* reported that procedures to deform human skulls were used in ancient times and by people residing in various regions of the earth.

Anthropologists have never determined satisfactorily where these procedures originated and for what reason they were performed. The two explanations given—(1) emphasis on the difference between classes, castes and social or racial groups, and (2) emphasis on sex—can be discounted because some people deformed the skulls of nobility only, whereas others deformed those of common men. Certain tribes changed the shape of the skulls of boys, and some aboriginal nomads those of girls.

The widespread use of procedures to deform human skulls probably has been caused by an "urge to imitate," but this hypothesis presupposes that the people carrying out such procedures must have been aware that the custom had been in use in other, probably neighboring, countries.

A definite similarity exists between the artificial deformation of skulls among ancient and primitive people and the alteration of the skull's shape which frequently occurs after difficult delivery. The skull of an infant born after frontal presentation usually exhibits a cranial configuration which appears almost identical with the result of the artificial deformation of the skull performed by pre-Columbian Indians of South America (Fig. 1).

The skull of an infant born after vertex presentation, however, exhibits a cranial configuration which appears almost identical with the result of the artificial deformation of the skull performed by Mangbattu Negroes of Central Africa (Fig. 2).

Such deforming of the skull might have been inspired by the desire to copy certain features of the calvarium observed in leaders of the tribes. Alteration of the skull shape was achieved by external pressure exerted by tight bandages. This "urge to imitate" obviously led to an artificial deformation of the skull even in instances in which a natural deformation of the cranium was present.

The methods used to deform an infant's skull were various. Either a head apparatus or a body apparatus was applied. The head apparatus usually consisted of a base of hard wood attached to the skull by bandages. Its use resulted in a straight type of skull deformation. Two boards fixed by bandages to the forehead and occiput probably obtained a more desirable oblique skull shape (Fig. 3). The body apparatus (called "cradle") consisted of a wooden base on which the infant was placed. Its use resulted in a straight type of skull deformation. If, however, the infant's head was placed on a cushion stabilizing the neck, the oblique skull shape was obtained (Fig. 4).

Artificial deformation of human skulls can be classified into two main groups: (1) the anteroposterior type, and (2) the circular type. Both types have been observed in either the straight or the oblique form.

Recognition of the types of skull deformations is comparatively simple for experienced anthropologists. However, certain fossil remains have been found in which external observations were not sufficient to determine which procedure had

1 Artificially deformed skull of a pre-Columbian Indian, Visicza, Peru

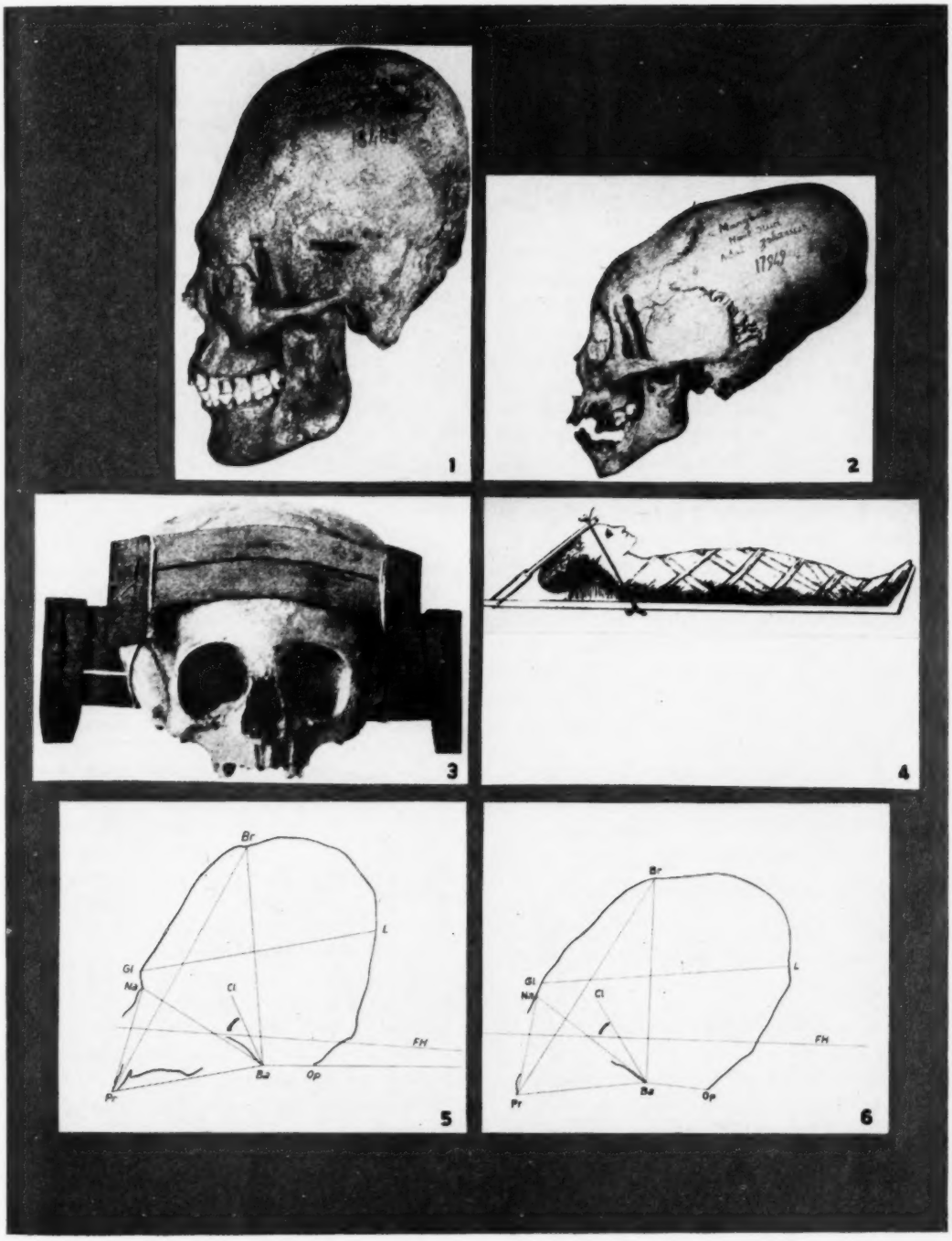
2 Artificially deformed skull of a Mangbattu Negro, Uele, Central Africa

3 Head apparatus to obtain oblique skull deformation

4 Body apparatus to obtain oblique skull deformation

5 Skull diagram of a pre-Columbian Indian, anteroposterior deformation

6 Skull diagram of a Mangbattu Negro, circular deformation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been used to change the shape of the cranium artificially. In such instances, other diagnostic methods must be used. The anteroposterior type exhibits longitudinal values similar to brachycephaly (having a cephalic index of from 81.0 to 85.4), and the circular type those of either dolichocephaly (having a cephalic index of 75.9 or less) or mesocephaly (having a cephalic index of from 76.0 to 80.9).

The diagrams of skulls artificially deformed also present significant differences. In skulls with a straight cranial alteration, the central angle has a value of about 90 degrees, whereas in skulls with an oblique cranial alteration, the central angle has a value of at least 100 degrees.

Another reference point in cranial diagrams of artificially deformed skulls is the angle between the sloping surface of the declivis cerebelli and the horizontal line of the skull. In the straight type (Fig. 5), this angle shows a value of about 60 degrees, whereas in the oblique type (Fig. 6), significantly lower values (between 45 and 55 degrees) were observed.

These values also can be applied in measuring the natural skull deformities produced by prolonged delivery or abnormal head position prior to birth, as well as in measurements to aid the diagnosis of malocclusions, fractures of teeth and jaws, and tooth extractions for orthodontic purposes in children in whom severe deformations of the skull are present.

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Dental caries and periodontal disease in Stone Age man

Hans Heuser and Horst Panke. *Stoma* 12:148-163 Aug.-Oct. 1959

In a recently discovered tomb, near Calden in Hesse, Germany, 41 skulls of Stone Age man were found. The buried polished stone implements indicated that the tomb originated in the Neolithic era, about 10,000 B.C. There were 24 lower jaws and 31 upper jaws with 10 deciduous and 403 permanent teeth.

Macroscopic and roentgenographic examinations revealed that 27 skulls were free from carious lesions. Seven skulls showed one carious tooth; three skulls, two carious teeth; one skull, three carious teeth; one skull, four carious teeth, and two skulls, six carious teeth. By taking into consideration the postmortem tooth losses, it can be assumed that the incidence of caries in these Stone Age skulls was 7.94 per cent.

Periodontal disease (mainly apical periodontitis) was found in seven skulls (17 per cent). Evidence of periodontal disease, however, was limited to the aged skulls. Heavy unilateral accumulation of supragingival calculus was found in ten skulls, together with exposure of the roots by absorption of the alveolar bone.

Thirty-nine teeth (9.68 per cent) showed a pathologic attrition involving mainly bicuspids and molars.

Cranial measurements showed slight variations from those of recent European man in the cephalic, gnathic, nasal and facial indices. This pattern appeared also when the dental and palatal indices were taken into consideration.

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The dentition of Australopithecus and Pithecanthropus

G. H. van Koenigswald. *Proc.kon.nederl.Akad.* 80:37-47, 1959

The first fossil evidence of *Australopithecus,* a genus of extinct *Anthropoidea,* was obtained by the discovery of a skull of an immature individual, found at Taungs in Bechuanaland in 1924 (Taungs skull). This specimen exhibited a number of characteristics, especially in the deciduous dentition, which approximated more closely the features of *Hominidae* than were observed in any of the known anthropoid apes.

Because the distinguishing characteristics of the skulls of apes and of *Hominidae* are not conspicuous in the immature period as they are in adulthood, considerable doubt was expressed regarding the significance of the apparently hominid features of the deciduous dentition of the Taungs skull.

As the result of excavations over a number of years, a great quantity of significant fossil material was collected, consisting of several skulls of immature and adult individuals, many upper and lower jaws and numerous permanent and deciduous teeth.

Anthropologic examination of these fossils revealed the following specific characteristics of *Australopithecus:* (1) a cranial capacity which was small but still exceeded that of the recent large apes; (2) massive and projecting jaws; (3) large molars and premolars but remarkably small incisors and canines, and (4) all bones developed in a hominid pattern.

The combination of a small brain case with large protruding jaws gave to the skulls an "ape-like" appearance, whereas a critical analysis of the cranial and dental characteristics demonstrated a morphologic pattern conforming to the pattern of the hominid sequence of evolution and not of the anthropoid ape sequence.

The dental morphology of *Australopethicus* is now completely known, and it is evident that it conforms in all fundamentals to the hominid type of dentition. The canines were consistently small and spatulated in form, and attrition started at the crown (as in recent man) so that the occlusion at an early stage of attrition was at a level with that of the other teeth. Their premolars resembled in shape the human bicuspids as well as those of *Pithecanthropus,* and were different from the pointed "sectorial" type of premolar which is found in all known apes. The molars of *Australopethicus* are not easily distinguishable from those of *Pithecanthropus,* and although comparatively large in many individuals, their size comes within the range of hominid molars.

The teeth of *Australopethicus* were arranged in an even dental arch of elliptic or parabolic form, and there existed no diastemata between canines and the adjacent teeth, a pattern which is definitely hominid and in contrast with the ape type of dentition.

In regard to dentition and skeleton, *Australopithecus* must be classified zoologically as belonging to the family *Hominidae;* this does not mean, however, that the terms "man" or "human" can be appropriately applied to this genus because there is so far no evidence that these creatures had developed the faculty of speech or the ability to produce implements. They are to be regarded as isolated representatives of the prehuman phase of hominid evolution.

The first discovery of fossil remains of the genus *Pithecanthropus,* consisting of a skullcap and thighbone, was made in central Java in 1891. The skullcap belonged to a true hominid (and not to a large ape) because its cranial capacity exceeded considerably that of any known ape. Later, several other skulls and isolated jaws and teeth of *Pithecanthropus* were found. From this fossil evidence it has been established that the Javanese type of *Pithecanthropus* exhibited primitive characteristics in skull and tooth development. The mean cranial capacity was less than 1,000 cc., the forehead appeared flat and retreating, the jaws and the palate were massive but there existed no chin eminence. The molars were exceptionally large and the upper canines projected beyond the level of the adjacent teeth and interlocked to a slight degree with the lower canines.

It is justified to assume that the *Pithecanthropus* phase of the hominid evolution was preceded by a phase characterized by individuals with smaller brains but with a dentition which showed at least some degree of modification in the direction of evolution which has characterized the *Hominidae.* In skeleton and dentition development, both *Australopithecus* and *Pithecanthropus* show such a curious mixture of anatomic features that many authors (unfortunately) have referred to them as "ape men" or "near men."

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Histology

Isotope studies on the permeability of the dental enamel to small particles and ions

J. L. Hardwick and J. H. Fremlin.
Proc.Roy.Soc.Med. 52:752-758 Sept. 1959

A knowledge of the particles which are able to penetrate dental enamel is essential to an understanding of the physiology of enamel. Knowledge of the permeability of enamel to glucose molecules and fluoride ions is especially desirable: glucose molecules, because their size appears to be about the limiting size of permeable particles and because they provide a common source of energy for the bacteria of caries and may be broken down by them to acid end products; fluoride ions, to account for the observations that the average fluorine content of enamel of erupted teeth is higher than that of unerupted teeth.

Preliminary in vitro studies by autoradiographic methods of the permeability of the enamel to glucose labeled with C^{14} suggest that glucose, or breakdown products of glucose, penetrates rapidly throughout the full extent of any carious lesion which can be recognized clinically or by routine microscopic investigation. In several teeth, in which no clinically recognizable carious lesion was present, radioactivity was observed within the pulps, but this penetration may have occurred through localized areas of defective enamel or along lamellas.

The demonstration of the penetration of enamel by fluoride ions is exceptionally difficult and can be done only by use of the radioisotope F^{18}. Penetration of the enamel by sodium in the form of sodium chloride labeled with Na^{22} can be demonstrated easily by autoradiographic technics.

Isotope studies of the enamel have led to the following conclusions:

1. Fluoride and sodium ions and glucose molecules or products of the breakdown of glucose penetrate rapidly through carious enamel.
2. Fluoride and sodium ions penetrate intact mature enamel. The mean depth of penetration of sodium ions increases more rapidly than that of fluoride ions.
3. The outermost layers of the enamel are more slowly permeable to sodium ions than the deeper layers. There is evidence suggesting a slower rate of penetration of the outer enamel by fluoride ions.

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Disintegration of human dentin and enzymatic activity in the pathogenesis of caries

Robert Weill. *Rev.mens.suisse odont.*
69:1123-1129 Dec. 1959

The matrices of ground substances of carious and soft dentin were examined histologically at the École Odontologique in Paris, France.

The precursor of the ground substance of fully differentiated dentin appears in the odontoblasts at the initiation of dentin formation as minute glycoprotein granules.

Carious and soft dentin specimens are completely or partially decalcified, and the dentin tubules have lost their component fibrils.

The mechanism of enzymatic activity (collagenase, hyaluronidase and proteinase), depolymerizing the carbohydrate-protein complex of carious dentin, has not been determined, and it is, therefore, not justified to incriminate the enzymes for swelling, softening and final solution of the ground substance of carious dentin.

The demonstration of the specific enzymatic activity, however, requires further investigations of enzyme inhibitors. Such an investigation would provide a more direct approach to caries prevention, reduction and treatment. It seems possible that the use of specific antienzymes would be an effective method of changing the bacterial flora, thereby interfering with the enzymatic assimilation of microorganisms suspected as being caries producing or promoting factors.

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Factors influencing oral conditions in pregnant women

A. Mugnier. *Actual.odontostomat.*, Paris 47:299-319 Sept.-Dec. 1959

Although it has long been established that there is a significant increase in the incidence of dental caries and periodontal disease in pregnant women, the factors causing or promoting such an increase have never been thoroughly understood; in fact, they have not as yet been adequately investigated.

The oral conditions of 2,000 pregnant women, admitted to the neonatal clinics of the combined hospitals of the City of Paris, were investigated, recorded and classified by staff members of the dental department.

The following conclusions were drawn:

1. The patient's age, the number of previous pregnancies and the economic circumstances seem to exert little or no influence on the development of pathologic conditions of the teeth or the gingivae.

2. Nutritional conditions, especially abnormal or inadequate dietary habits, play a significant part in the demonstrable increase of caries and periodontal disease. Pregnant women who were significantly undernourished, showed an increase of about 60 per cent in the incidence of caries, and an increase of about 40 per cent in that of periodontal disease.

3. Pregnant women, who were born in foreign countries, especially those of Italian and Russian ancestry or of African (Negroid) origin, showed a far more healthy dentition than those of French parentage.

4. The difference, statistically significant, was not caused by specific racial characteristics but by dissimilarities in diet.

5. To prevent further increases in the incidence of caries and periodontal disease in pregnant women, complete-mouth roentgenograms were taken at the date of the women's admittance to the neonatal clinics, the necessary tooth extractions were performed, prophylactic treatment was given and an educational program carried out, emphasizing the importance of oral hygiene, adequate nutrition and periodic dental examination prior to and during pregnancy. Extensive oral surgical interventions, however, had to be postponed, as were all other major operations.

The dentist, who often sees a pregnant woman earlier than does the obstetrician, can give valuable instruction as to diet and nutrition, oral hygiene and proper management of pathologic conditions in the mouth. Probably there is no time more favorable than the period of pregnancy in which dietetic and hygienic advice is more readily accepted. The dentist also can help to dispel the traditional fear that dental procedures performed during pregnancy are dangerous to either the mother, the child or both. Adequate nutrition and excellent oral hygiene unquestionably are important factors in the prevention of pathologic conditions in the mouths of pregnant women, and have a direct bearing on the quality of the tooth structure and periodontal tissue of both the mother and the child.

6 Rue de la Bûcherie, Paris 5, France

Motor mechanism of masticatory function and parafunction within the oral cavity

H. Lullies. *Schweiz.Mschr.Zahnhk.* 70:87-96 Feb. 1960

The different movements of the skeletal muscles, especially those of the facial and masticatory muscles, are influenced by various physiologic impulses and stimuli which are transmitted through the fibers of the sensory nerves.

Stimuli and impulses which effect either an increase in the activity or an inhibition of the motor mechanism regulating masticatory function originate in sensory nerve terminals (receptors) situated in surface tissues (skin or mucous membranes), in deeper lying tissues (dentin, periodontal membrane, gingiva and alveolar bone) or in the muscular spindles enclosed in sheaths of

connective tissue. These receptors respond immediately to tensions arising within the involved muscles, thereby influencing the motor mechanism of masticatory function.

Electromyographic examination of the masticatory musculature has revealed that tensions at rest position (tonus) depend on the stimulation of the peripheral receptors whereas the unconscious action of the masticatory musculature—even during sleep—depends on the electric action potential of the motor mechanism.

By measurement of the electric action potential in the muscles and nerves involved in masticatory function, the cause of disturbances in the motor mechanism of mastication can be revealed. By immediate treatment, the development of pathologic changes in mastication such as the "misuse of the masticatory force" (Karolyi) and the "oral parafunction" (Drum) can be avoided.

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Studies on the smell of saliva

Seizo Kawasaki. *Shikwa Gakuho* 59:43-63 July 1959

The relation between diet and the smell of saliva was studied in healthy girl students about 20 years old.

The subjects received carbohydrate, protein or fat food under controlled conditions, and the effects of each type of food were studied.

The smell of saliva was strengthened most by the intake of carbohydrates, and strengthened to a lesser degree by the intake of protein. The smell of saliva was inhibited by the intake of fat.

The influence of food on the smell of saliva disappears about three hours after the food has been consumed.

The component in saliva responsible for its smell after the intake of food is mucin. The intake of carbohydrate causes the greatest increase in mucin. Protein causes a lesser increase, and the quantity of mucin in the saliva decreases after the intake of fat.

The viscosity of saliva varies directly with mucin values and V.R.S. (volatility and reductive substance) values.

The intake of all food results in an increase in the pH of saliva; this is especially noticeable with protein food; the increase in pH is smaller after fat has been consumed.

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Effect of chewing on flow of tissue fluid into human gingival pockets

N. Brill. *Acta odont.scandinav.* 17:277-284 Nov. 1959 [in English]

This study was undertaken to determine whether chewing stimulates the flow of tissue fluid into human gingival pockets. The subjects were 15 girls ranging in age from 18 to 22 years.

Before the collection of samples, the labial and lingual surfaces of the teeth and gingivae were dried with gauze. Previous to and immediately after mastication, samples of fluid were recovered from the gingival pockets by means of strips of filter paper (Brill and Krasse, 1958). When a difference could be recorded between the amounts of fluid recovered from the same pockets before and after mastication, it was assumed to be a result of the stimulation produced during chewing.

Each subject was requested to chew energetically for ten minutes in the right side of the mouth a piece of paraffin wax weighing about 8 Gm. with a volume of about 20 cc.

Chewing the wax produced a statistically significant increase in the flow of tissue fluid into gingival pockets. The strips were tested for amino acids, and the presence of such acids was demonstrated.

It is reasonable to assume that such chewing has a bearing on gingival health. The last course of a meal should be such as to utilize the self-cleansing capacities of gingival pockets. A variety of humoral defense factors may be mobilized by vigorous chewing and come into play on both sides of the epithelial lining of gingival pockets. These sites thus are equipped to take care of invading bacteria and toxins chemically.

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Endodontics

A critique of a new and improved material for filling of root canals

Arne M. Bjorndal. *Iowa D.J.* 46:67-68 April 1960

For several years an organic chemical ketone complex, Diaket, has been used as a root canal filling in dental clinics in Germany and all over Europe. It is not yet on the market in the United States but is being tested by the Bureau of Standards.

For three months, Diaket has been used in the endodontic clinic of the State University of Iowa College of Dentistry, with most satisfactory results. It is used in conjunction with silver points and gutta-percha points to fill root canals. However, in extremely difficult instances where the root canals in bicuspids and molars are small and tortuous, Diaket is used alone and seems to seal the canals satisfactorily.

Diaket is made up of a powder and a liquid. Each package contains a fluid dropper and a measure for powder. The powder is of a fine consistency, and the liquid is thick and slow-flowing. When the root canal is ready to be filled, the liquid and powder are mixed thoroughly on a sterile glass slab to a consistency of thick cream. This mixture is carried into the root canal with a Lentulo needle. The mixture is very sticky and adheres to the walls of the root canal even if they are moist. After a few minutes, the mixture sets very hard and can be removed only by applying Dialyt, an organic solvent included in each package of Diaket.

The setting time can be controlled by adding liquid. One drop of liquid and one measure of powder sets up in 5 to 10 minutes; two drops of liquid to one scoop of powder, in 15 to 20 minutes, and three drops of liquid to one scoop of powder, in 30 minutes.

In laboratory experiments, Diaket appears to adhere to the walls of a glass tube even though the walls are wet. Roentgenographically, Diaket shows good contrast when mixed correctly. No bacterial growth is possible if Diaket is used, although the material has no antiseptic properties. Diaket does not discolor the dentin or enamel. Permanent restorations of materials such as amalgam, silicate or foil can be placed directly into the cavity without a base, after the root canal sealer has set.

Several acids have a deleterious effect on Diaket. Camphor and phenol make it soft, and before the canal is filled with Diaket any of these medicaments present should be removed. Water-soluble medicaments, such as alcohol or chloramine, do not affect Diaket.

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Infection in root canals

David S. Shovelton and D. A. Sidaway. *Brit.D.J.* 108:115-118 Feb. 2, 1960

This study was undertaken to isolate and identify the microorganisms occurring in the root canals of teeth with infected pulps, with particular reference to comparative results obtained by aerobic and anaerobic methods, and to investigate any possible relationship between bacteriologic, roentgenographic and clinical condition of the teeth before treatment.

Cultures were obtained from the root canals of 147 permanent teeth, before treatment. The root canals had not previously been exposed. Growth was obtained from 110 (74.8 per cent) of the 147 root canals. The organisms most frequently isolated were streptococci of the alpha and gamma hemolytic types and anaerobic streptococci. A high frequency of isolation of obligate anaerobes was noted. Twenty-five of the 110 positive cultures contained anaerobic organisms only, and a further 50 cultures contained both aerobic and anaerobic organisms.

There was no apparent correlation between the roentgenographic appearance of the periapical tissues and the bacteriologic status of the root canal before treatment.

In view of the high incidence of anaerobic organisms, the practice of incubating cultures

from root canals aerobically only must be viewed with suspicion.

Rarefaction of bone in the apical region in the absence of demonstrable infection in the root canal appears to be caused by irritation from the products of protein decomposition after death of the pulp.

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'Antiseptor' rinsing and sucking apparatus for endodontic treatment

Carlo Zerosi. *D.Echo* 30:52-53 Jan. 1960

Thorough mechanical preparation of a root canal obtains sterility in not more than 50 per cent of instances. If, however, complete removal of necrotic or gangrenous substances from the root canal by routine instrumentation is accompanied by effective antiseptic measures, success in endodontic treatment can be achieved in almost 100 per cent of instances.

It seems, therefore, important to combine a method for complete removal of detritus with an extremely effective antiseptic technic to secure optimum success in endodontic treatment.

Cleansing the prepared root canal with weakly concentrated bactericidal solutions, preheated to a temperature of 60° or 70°C., is indicated. Bacteriologically, each increase in temperature of 10°C. approximately doubles the bactericidal effect of the solution.

The "Antiseptor," a simple rinsing and sucking apparatus, has been designed to provide sterilization of root canals in a practical manner and without loss of time, even in instances in which the teeth are in an unfavorable position. The apparatus consists of a handpiece to which two glass ampules are attached anteriorly and of two long hollow needles, the first for supplying the antiseptic solution, and the second for removing the liquid. Both ampules are connected to the motor by rubber tubes attached to the posterior end of the handpiece. However, extreme care should be executed to ascertain that the pressure tap remains connected to the rinsing ampule which can be controlled by the tip of the right index finger.

After the motor is started, the point of the rinsing needle approaches the opening of the prepared root canal and remains in position for from one to two seconds. By jet action, the antiseptic solution penetrates the canal. It is important to interrupt the rinsing jet from time to time by raising and lowering the finger pressure. Excess rinsing liquid and all foreign bodies are simultaneously removed by the suction needle, preventing the solution from flowing over the oral mucosa. When the sterilizing procedure has been completed, the needle's desiccative effect is sufficient to render the canal completely dry. After use, both ampules should be emptied immediately.

In general, 10 cc. of the bacteriostatic solution will be sufficient to sterilize two root canals. The temperature of the solution may range between 60° and 70°C. without causing discomfort or pain to the patient. The necessary energy and pressure may be generated by any motor.

Via M. de Taddei 3, Milan, Italy

Histopathological findings on periapical tissues of a tooth, 8 years 7 months after an infected root canal was treated

Masao Iwabuchi. *Shikwa Gakuho* 59:59-61 Aug. 1959

Acute suppurative apical periodontitis was observed in the region of the upper left central incisor of a 34 year old woman. The root canal was cleaned, the patient received penicillin until the periodontitis had subsided, and the root canal was filled with Triozinc paste.

After 3,139 days had elapsed, the periapical tissues were studied roentgenographically and histologically. Roentgenograms showed no abnormality of any kind in the involved tooth. Histopathologic findings showed that the inflammatory infiltration of the apical region had disappeared. The periodontal space had resumed a normal width because of perfect regeneration of the alveolar bone and the addition of cementum to the root surface. The periodontal membrane had regenerated and the periapical tissues had resumed a normal condition.

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Pedodontics grows up: the science of dentistry for children

Henry M. Wilbur. *J.Kentucky M.A.* 58:181-183 Feb. 1960

Dentistry for children, as a special branch of dentistry, dates from about 1927 with the formation of the American Society for the Promotion of Dentistry for Children. Now known as the American Society of Dentistry for Children, the organization has about 4,200 members. Membership is open to any dentist interested in pedodontics.

The American Board of Pedodontics was incorporated in 1941 but did not give its first examinations until 1949. The formal organization of the specialty of pedodontics on a national basis occurred in 1947 with the formation of the American Academy of Pedodontics, in Ann Arbor, Mich.; the Academy has about 90 members, all of whom are full-time pedodontists.

These developments are a far cry from the early days when children were treated in the dental office in order to maintain the good will of the rest of the family.

A change in pedodontic practice is slowly developing, brought about by the fluoridation of drinking water and the subsequent decrease in caries. The pedodontic teaching program at the University of Louisville School of Dentistry also has changed. More emphasis now is placed on the principles of growth and development of the jaws and teeth.

Now dental students can be taught to give attention to the development of the child's dentition and occlusion; to diagnose gross discrepancy between jaw size and total tooth size and thus indicate a treatment plan involving the serial extraction of certain teeth; to treat some of the simpler orthodontic problems; to manage the ectopic eruption of a permanent first molar, and to treat such problems as persistent oral habits, developmental anomalies and ankylosis. The pedodontist has made progress in the oral care of children with cerebral palsy, and in participating in the teams organized to treat children with cleft palate.

Among the anticipated developments in pedodontics are the following: (1) a rapid expansion of palliative, preventive and interceptive orthodontic treatment; (2) an expansion in the use of cephalometric roentgenography as a diagnostic tool; (3) an expanded use of drugs and perhaps of hypnosis in influencing the child's behavior in the dental office; (4) a speeding up of dental operative procedures brought about by the introduction of high-speed dental units and improved burs and stones and the use of water as a coolant, and (5) better treatment of congenital malformations and deformities as the result of etiologic research.

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Natal and neonatal teeth

Jessie Bodenhoff. *Odont.Tskr.* 67:645-695 Dec. 1959

Although natal and neonatal teeth are anomalies, their incidence is far more frequent than was previously supposed. A review of 186 reports on natal and neonatal teeth and of 145 cases reported by Danish midwives and health visitors establishes that the incidence of natal and neonatal teeth is at least 1 in 3,000 births.

In about 85 per cent of the cases reported in the literature, there is an eruption of one or both deciduous lower central incisors. Normally, these teeth are the first to erupt.

Generally, the anomaly relates to the early eruption of normal deciduous teeth, and seldom relates to the eruption of supernumerary teeth. Supernumerary deciduous teeth are extremely rare.

The etiology of natal and neonatal teeth is still obscure, but in some instances it seems that the anomaly is attributable to a superficial position of the gingiva, perhaps related to hereditary factors.

The presence of natal and neonatal teeth may cause some inconvenience to mother or child; possibly extraction may be necessary, but should not be undertaken arbitrarily. Preferably, extrac-

tion of deciduous teeth should be avoided.

The diagnosis is made by means of roentgenograms. Extraction is unlikely to present any difficulties, because natal and neonatal teeth seldom are firmly fixed. The individual tooth can be removed easily with forceps or by ligating the tooth. However, the following points should be observed:

1. As far as possible, natal and neonatal teeth should not be extracted until after the tenth postnatal day, to avoid excessive hemorrhage.
2. It may be advisable to administer vitamin K, depending on the child's age.
3. The child's general state of health should be considered.
4. Care should be taken not to injure the gingiva more than strictly necessary.
5. Attention should be paid to the risk of the tooth being aspirated or swallowed.

The bibliography lists 318 references.

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Orthodontics

The task of the orthodontist viewed from a biologic standpoint

A. Martin Schwarz. *Am.J.Orthodont.* 45:856–860 Nov. 1959

Typical malocclusions are the result not of disease but of two factors working together: (1) a devious hereditary disposition (probably a mutation), and (2) an abnormal environment which promotes and intensifies the hereditary disposition.

In addition to an abnormal hereditary disposition which is manifest because of an environment favoring it, there are several other dormant tendencies among which is the hereditary disposition of the sound normal dentition, which is awaiting only the favorable opportunity from the external world to become manifest.

The clearest proof of the existence of hidden, slumbering hereditary qualities in addition to the one manifest in the same person is the fact that these qualities often jump one or even more generations.

The appearance of every detail of a living organism is not the result of only one existent hereditary tendency; but out of a number of different dispositions only one becomes manifest, namely, the one which best corresponds to the given environment.

The concepts of the science of genetics indicate that the orthodontist has a great opportunity. If he makes fundamental alterations in the devious environment early enough, he will succeed in suppressing, in most patients, the temporarily manifest undesirable hereditary quality and promoting another, more desirable one which will persist throughout the rest of the patient's life. By placing an appliance in the mouth of a child, the orthodontist interferes with different contesting hereditary tendencies that are competing to become manifest.

There is a fundamental contrast in the biologic thinking of European orthodontists and of those in the United States. In the opinion of the American orthodontist, the final form of the whole dentition already is determined at birth. Therefore, the orthodontist is left a small field for treatment which involves transforming the alveolar bone artificially by force alone. Consequently, he is afraid of disturbing the directed growth by early treatment of the deciduous or mixed dentition during the time of its most impetuous development, and prefers to treat the permanent dentition.

The European orthodontist, on the other hand, believes that he must start treatment during that period of turbulent growth, trying to bring the favorable hereditary tendencies to the fore. He is convinced that this is the best time for successful treatment. He rejects appliances that work only on a tooth and its alveolar bone. Instead, if possible, he uses devices which simultaneously influence all aspects of the malocclusion in two ways: (1) by gentle stimulation to transform the jaws in the direction of the desired hereditary tendency and (2) by radical change of function. In Europe, orthodontics has become orthopedics of both whole jaws, and orthodontics has expanded to a socially valuable status, in that the new, less expensive methods of treatment can be

studied by the general practitioner of dentistry as well as by the orthodontic specialist. The fact that the new treatment is inexpensive and can be more easily learned is a lucky coincidence.

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Indications for the use of orthodontic appliances exerting extraoral forces

F. Paolo Lucchese. *Minerva stomat.* 8:764-767 Nov. 1959

Success or failure of orthodontic treatment unquestionably depends on the degree of departure from the normal in growth and development, whether caused by isolated factors or by a combination of factors. In patients in whom significant discrepancies from the normal condition are present, the prognosis of orthodontic correction, whatever treatment method is attempted, appears unfavorable.

Without consideration of the individual patient's morphogenetic pattern, his motivation and cooperation and the unpredictable increments of growth and development during the period of orthodontic treatment, the prognosis becomes indeterminate.

Dealing with specific physiologic phenomena, the orthodontist cannot expect a simple solution to the many problems encountered in his practice, and no satisfactory answer to some of the questions.

There exists no strict formula which can be applied to orthodontic correction of all types of malocclusion, especially in instances of Angle's Class II, Division 1 malocclusion.

The indication for and the applicability of extraoral forces in the correction of Class II malocclusions, has been investigated at the A. Beretta Dental Institute in Bologna, Italy.

The following conclusions were reached:

1. In most instances, Angle's Class II (especially Division 1) malocclusion responded readily to orthodontic treatment in which appliances with occipital or cervical anchorages were used to exert extraoral forces. Profound improvement in the basal relations occurred, and in the majority of patients the degree of overbite and overjet has been reduced significantly.

2. The initial pattern of malocclusion, the relation and degree of occlusal failure, the presence of extreme overbite or overjet and the unpredictable amount of growth during the treatment period exerted a definite influence on the result.

3. Despite the unpredictability of development during the treatment period, growth appeared to be an important factor in correction of malocclusion. Acceleration or retardation of growth influenced profoundly the treatment result. Coordination of the orthodontic procedures with the pubertal growth provided a significantly greater chance for success. The most favorable results of orthodontic appliances exerting extraoral force have been obtained in girls from 10 to 12 years old, and in boys from 12 to 17 years old.

4. Certain untoward complications occurred in isolated instances after the employment of extraoral forces. These sequelae included incomplete correction of tooth malrelations, excessive distal tipping of the upper first molars, impaction of the upper second and third permanent molars, excessive tilting of the upper incisors, unilateral response of the upper dental arch, and difficulty in control of excessive overbite.

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Experimental biology in orthodontics

L. J. Baume. *Rev.Belge Sci.dent.* 14:567-580 Oct.-Dec. 1959

In orthodontics, biologic experiments may serve as a valuable method in the determination of physiologic and pathologic changes in the growth mechanism of craniofacial structures. The biologic findings may aid in the interpretation of serial roentgenograms to evaluate the changes in the patterns of growth and development of the maxillofacial structures which were obtained by orthodontic procedures.

A. G. Brodie (1958) assumed that the formation of the craniofacial bones (osteogenesis) proceeds in a direction parallel to the exerted muscular stresses.

Experimental biologic investigations of the main factors controlling the development of the maxillofacial bones, especially the jaws, were carried out at the Institute of Dental Medicine of the University of Geneva, Switzerland. The

investigations revealed that contrary to Brodie's concept osteogenesis often proceeds in a direction opposed to the exerted muscular stress. Skeletal morphogenesis can be primarily determined by the growth rate and direction of endochondral ossification centers which are highly independent of any functional influence.

R. M. Ricketts (1955) investigated the reactions of the temporomandibular joint to the changes obtained by orthodontic treatment. Superimposed serial roentgenograms revealed that stunting and disorientation of the condylar growth in many patients, especially in those with Angle's Class II malocclusion, were responsible for the development of retroclusion.

In the recent investigation, a profound distoclusion in rats was produced arbitrarily by influencing cartilage growth through endocrine experiments; factual evidence was obtained confirming Ricketts' findings.

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Cephalometrics and longitudinal research

Ernest H. Hixon. *Am.J.Orthodont.* 46:36-42 Jan. 1960

A study of the changes which occur during orthodontic treatment, or a study of the rates of normal facial growth from one year to the next, as reflected on roentgenograms, requires precision in measurement. Failure to recognize errors in measurement can lead to faulty conclusions. The amount of error included in a cephalometric measurement may be crucial to the interpretation of longitudinal analyses concerned with rates of growth.

Blurring of the landmarks on the films contributes to the unreliability of cephalometric measurements. Factors which cause blurring, according to Thurow (1951) are: (1) motion of the subject or machine, (2) optical blurring which is dependent on the size of the x-ray anode focal spot, and (3) grain produced primarily by intensifying screens. Another factor, especially in older subjects, is secondary radiation from the facial structures.

Blurring can be overcome or reduced by using (1) an x-ray tube with a small focal spot, (2) a high kilovolt technic with a grid in the diaphragm, (3) large tube-to-film distances, and (4) a short exposure time. These means have been used to minimize blurring with the x-ray equipment used in the longitudinal facial growth study at the University of Iowa.

Another source of error is introduced by tracing paper and the pencil line. This error can be minimized by measuring directly on the film when the landmarks have been registered. Landmarks can be registered by piercing the emulsion of the film with a fine needle point. All films for one subject should be inspected with regard to the landmark under consideration. After such an inspection, the landmark is registered on each film. In this way, the landmark is comparable from age to age.

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Prosthetic dentistry

Eliminating a health hazard in prosthodontic treatment of patients with pulmonary tuberculosis

M. A. Pleasure, Edith L. Duerr and Milton Goldman. *J.Pros.Den.* 9:818-824 Sept.-Oct. 1959

The construction of dentures for tuberculous patients presents the special hazard of exposure of dental personnel to infection. Impressions, jaw relation registration apparatus and try-ins in the tuberculous patient's mouth are subjected to contamination and cannot be sterilized by heat. Wax, shellac baseplates and acrylic resin are thermoplastic materials which would be destroyed or distorted by usual sterilizing procedures.

The authors sought a reliable method of sterilizing all such prosthetic materials and appliances after exposure in the patient's mouth and before transferring them to the dental laboratory.

Chemical vapors, solutions and ultraviolet light were considered as possible germicides. Among the solutions tested were 70 per cent alcohol, 5 per cent Lysol, and Formalin 1, 5 and 10 per cent. Seventy per cent alcohol and 5 per cent Lysol had undesirable effects on several dental materials, and their study was not continued. Formaldehyde solutions seemed harmless to the dental materials subjected to their action.

Various impression samples composed of shellac baseplate, green Kerr modeling compound, and Kerr Permlastic rubber were placed in a suspension containing a strain of *Mycobacterium tuberculosis* found in human beings and then were immersed in Formalin solutions of different strengths for varying lengths of time. Control impression samples were not immersed in germicidal solutions.

It was found that impression samples heavily seeded with *Myco. tuberculosis* were sterilized effectively by immersion in a 10 per cent solution of Formalin for 15 minutes. For further security, 30 minutes of immersion was adopted as a minimal standard for sterilizing prosthetic materials and appliances before they are turned over to laboratory technicians. The materials are rinsed in cold running water to remove irritating Formalin. Immersion in 10 per cent Formalin for 30 minutes has no deleterious effect on materials.

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Headaches caused by bruxism

Woodrow S. Monica. *Ann.Otol.,Rhinol. & Laryngol.* 68:1159-1162 Dec. 1959

Bruxism causes prolonged and sustained contractions of the masticatory muscles which exceed the physiologic function of these muscles and may result in partial tetany. The resulting pain may cause headache.

Two case reports suggest headache caused by bruxism and a possible method for its control.

A 30 year old woman suffered every morning for three years from headache in the frontal region. Her headaches started shortly after the insertion of two large gold dental bridges. She said her jaws felt tight in the morning. The gingivae were inflamed from the excessive grinding pressure of bruxism. She had a severe malocclusion and a "chipmunk" look. An acrylic splint (similar to a boxer's mouthpiece) was constructed for the patient, and inserted nightly. The headaches, the gingival inflammation and the "chipmunk" look disappeared.

A 45 year old woman for ten years had suffered from recurrent headaches in the frontal and left temporal regions. The headaches started after multiple extractions and the insertion of an upper partial denture. The headaches disappeared after the insertion of an acrylic splint.

A 36 year old man who had suffered for about 20 years from headache in the temporal and suboccipital regions, and whose teeth and masticatory musculature gave no evidence of bruxism, however, obtained no relief from headache by wearing an acrylic splint nightly and often during the day.

When the free movement of the mandible is restricted by inadequate fillings, malocclusion or ill-fitting dentures, the patient may unconsciously attempt to smooth the impediment. This forceful,

nonfunctional grinding of the teeth causes an abnormal stress to the masticatory muscles. An acrylic splint is smooth and permits the easy movement of the mandible. Without the subconscious irritant of occlusal incongruities, the patient usually ceases to grind his teeth.

All patients with malocclusion do not grind their teeth or suffer from headache. Likewise, all patients who habitually grind their teeth do not have headache.

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Dimensional changes occurring in artificial dentures

J. B. Woelfel and G. C. Paffenbarger.
Internat.D.J. 9:451-460 Dec. 1959

In 1936, poly (methyl methacrylate), one of the acrylic resins, appeared and within a few years it replaced practically all other denture base materials. Since 1942 the most significant advance in denture base materials probably has been the development of the self-curing acrylic resins.

The dimensional changes that occur during the fabrication of acrylic resin dentures are due to basic physical properties of the resin and molding investment. The amount of linear processing shrinkage occurring in the molar-to-molar span usually is less than 0.3 mm. This change takes place before insertion of the denture. Usually, most of it occurs when the cured denture is removed from the gypsum cast. The dimensional changes that occur in clinical service are due mostly to sorption of water by the resin. The expansion from sorption of water by the denture base usually is less than 0.2 mm. and compensates in part for the curing shrinkage. Properly cured acrylic resin dentures do not change in dimension significantly after the first three months.

All of the changes that occur in acrylic resin dentures are of such small magnitude that it is difficult to detect them clinically. The looseness, soreness or complaints of dissatisfaction from the wearing of artificial dentures most likely are due to causes other than warpage or distortion of the denture bases.

The following changes may occur during fabrication of a denture:

1. The shape may be altered when a gypsum cast is poured into the impression, the order of this change corresponding to the setting expansion of the gypsum (0.12 to 0.44 per cent.)

2. The shape may be altered during the trial packing in the flask. Just prior to polymerization, a volumetric expansion of the acrylic dough occurs (4 per cent).

3. From the dough stage to the processed resin denture, a volumetric shrinkage of about 7 per cent occurs.

4. Because the acrylic resins have a higher coefficient of thermal expansion than that of the surrounding investment, the acrylic denture acquires strain during cooling. The release of some strain when the denture is removed from the cast results invariably in a contraction of a denture across the posterior section primarily, with a consequent change in contour of the tissue-bearing surface. Reported values for linear curing shrinkage of acrylic dentures range from 0.26 to 1.2 per cent.

5. Finally, the shape of a denture may be changed during the finishing and polishing procedures if too much heat is generated. Polished acrylic dentures should be stored in water at all times until delivery to the patient, to prevent shrinkage caused by loss of water.

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Public health dentistry

Fluoridation around the world

G. H. Leatherman. *Internat.D.J.* 9:517-535 Dec. 1959

In 1959 the Fédération Dentaire Internationale made a world survey of the progress of fluoridation. Although the principle of fluoridation as an effective means of reducing dental caries is accepted by some health authorities, fluoridation has not yet been implemented on a large scale in many countries, as is apparent from a review of the following six regions of the world:

1. Americas: Fluoridation is practiced most extensively in the United States and Canada. In the United States as of June 1958, 1,651 communities with a population of about 34,000,000 were obtaining fluoridated water from nearly 900 water supply systems. An additional 300 communities with a population of about 4,000,000 were using naturally fluoridated water. In Canada, 28 communities with a population of nearly 1,000,000 have controlled fluoridation of their water supplies. In Latin America, fluoridation on a small scale is practiced in Brazil, Chile, Colombia, El Salvador, the Panama Canal Zone and Venezuela.

2. Africa: A fluoridation program has been initiated in Germiston, Union of South Africa. In several areas of Africa the natural fluorine (fluoride ion) content of the water is very high. In Kenya the concentration is as high as 100 ppm, so that in this area defluoridation is being studied. In some rivers in Tanganyika the fluorine content is as high as 30 to 45 ppm.

3. Western Pacific: In Australia, two towns—Beaconsfield, Tasmania, and Yass, New South Wales—now have fluoridation programs. The government of Hong Kong has approved a fluoridation program. In Japan, one experimental fluoridation project has been in operation for six years. In Singapore, fluoridation began in May 1956. At Hastings in New Zealand, a fluoridation project has been in progress since 1953.

4. South-East Asia: The principles of fluoridation do not appear to have been applied at all in the countries of this region.

5. Eastern Mediterranean Region: In this region are a number of areas where the natural fluorine content of the water is high. The water supply of Alexandria, Egypt, has been fluoridated.

6. Europe: No fluoridation project exists in Denmark, France, Greece, Northern Ireland, the Republic of Ireland, Norway and Spain. Topical applications of fluoride solutions or the use of fluoride tablets have been introduced in Austria, Finland, the East German Democratic Republic, Hungary, Italy, Switzerland and Yugoslavia. Experimental fluoridation programs have been launched in Belgium, Czechoslovakia, the West German Federal Republic, Great Britain, The Netherlands, Sweden and the Union of Socialist Soviet Republics.

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Dental caries in Aymara Indians of Peru

H. H. Neumann and N. A. DiSalvo. *Odont.Tskr.* 67:473-480 Sept. 1959

Almost no dental caries is found in the teeth of the Aymara Indians who live in the mountainous region of Southern Peru and Bolivia in the areas adjacent to Lake Titicaca. This district is an inhospitable, semi-desert country, with a severe and capricious climate. Many of the villages are located at altitudes of 12,000 to 14,000 feet above sea level. In this desolate environment, the Aymaras exhibit dentitions such as are rarely seen in civilized environments.

In Puno, the district capital, the incidence of dental caries among the Aymaras is similar to that found in persons on modern dietary regimes. However, in the smaller, less accessible village of Icho, the average DMF count among 36 men was 1.1. A similar low incidence of caries was observed in the Aymaras living in Chucuito and Acora.

The Peruvian Army inducts Aymaras at the ages of 18 to 20 years; many come from outlying areas. The authors examined 51 of these young inductees; the average DMF rate was 0.2, that is,

a virtual absence of caries. Some of these young Indians already had served for many months in the Peruvian Army, under a modern dietary regime. The DMF rate at the time of the induction was about one-hundredth of that found among recruits of the United States Army (Nizel and Bibby, 1944).

Oral cleanliness among the Aymaras varied greatly. Practically all showed a chronic marginal gingivitis. The rest of the gingival tissue was firm, pink and healthy in most subjects. The amount of wear of the occlusal surfaces varied, but generally seemed to be much greater than that seen in comparable age groups on civilized diets.

The Brekhus gnathodynamometer was used to register the maximum biting force of 36 Aymara men in the village of Icho. The average height of these men was about 5 feet, the average weight was about 110 pounds; the group included men in a wide range of ages, and some appeared quite old. The mean of the maximum bite force was 152 pounds. In the 51 young Aymara inductees, the average of the recorded maximum bite force was 184 pounds, comparable to that found by Waugh (1930) in Eskimos, and much above the average of 126 pounds reported by Brekhus, Armstrong and Simon (1937) among athletes at the University of Minnesota.

The principal crops grown by the Aymaras are potatoes, barley and quinoa (pigweed), and *habas* (broad beans) and maize. Some Indians keep guinea pigs, chickens, llamas and alpacas; animals are slaughtered for food on important occasions. Dairy products, green vegetables and eggs hardly are available. The diet is grossly inadequate in proteins, low in fats, deficient in vitamins A and C, iron and calcium. Most of the food consumed appears to be well-cooked, soft or liquid. There seems to be an absence of hard-textured foods. But aside from their meals, the Aymaras chew hard-textured foods such as toasted broad beans and *quispinus*, a kind of biscuit made from a native grain.

That a dietary factor is primarily involved in producing such excellent dentitions is evidenced by the rapid disintegration and ravaging effects which follow when the Aymaras adopt a civilized diet.

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Prenatal care and fluorine

J.A.M.A. 171:1441 Nov. 7, 1959

Q.—Is fluorine used in the form of sodium fluoride beneficial to the development of deciduous teeth in utero? Is it indicated for prenatal care?

A.—There is little evidence to suggest that low levels of fluorine can pass the placental barrier. In any event, the formation of prenatal enamel is so perfect that addition of fluorine in prenatal care is not indicated.

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The design of a dental hygiene campaign

D. H. Goose. *Pub.Health* 73:7-13 Oct. 1959

A well-planned dental health education campaign requires the following steps: (1) pilot studies to find the scope of the problem; (2) the collection of base line statistics; (3) propaganda, and (4) assessment of the results.

To assess the results of any propaganda on the test group, it is necessary to have a control. In most instances, the best way is to have two towns not too far apart, of which the relevant variables are more or less equalized. The composition of the populations, the fluorine content of the drinking water, the existing amount of dental health education, and the ratio of dentists to population in each town should be similar. The rates of caries and gingivitis should be comparable in the two towns if valid assessment is to be made of the success of the program in lowering the rates.

Although replies to a questionnaire can provide some idea of the oral hygiene status, it is imperative to check such information by a clinical assessment. The DMF index probably is the best for assessing caries, although DMF tooth surfaces may be used. Conditions of inspection should be standardized, and preferably the same examiner should do all the inspections. The PMA index usually is used to assess the incidence of gingivitis.

An important principle of health education is to try to appeal to the interests and needs of the people concerned. Mothers are supposed to be receptive to ideas concerning their children. Children two to five years old are difficult to

reach. A birthday card could be sent them on their third birthday, proposing a dental inspection. Early in school life, the importance of making a habit of cleaning the teeth should be stressed. Teachers have a special responsibility here, both by personal example and teaching. Girls are particularly susceptible to the idea of the importance of good teeth for pleasant appearance, and boys to the idea that bad teeth are harmful to general health and may make them unfit for sports. The most influential groups of people concerned in oral hygiene are dentists, physicians, health visitors, midwives, district nurses and teachers. If possible, the parents' help should be enlisted in any campaign involving their children. Leaflets and posters are useful, if shown at well-chosen times. Films are very useful, as are film strips. Both radio and television programs penetrate into the family circle, and potentially are the most powerful of all health education methods. The best results probably are obtained by the introduction of dental health ideas into existing radio and television programs. Exhibitions can be of value, particularly as a means of refreshing an existing long-term campaign.

To assess the results of a dental health campaign, the examination made to secure the base line data will have to be repeated after a suitable interval.

Northamptonshire County Council, Northampton, England

Relation between dietary habits and caries incidence in Amsterdam school children

M. Nederveen-Fenenga, R. Luijken and A. Schoustra. *Tschr.tandheelk.* 66:817-827 Nov. 1959

In a survey of the dietary habits of nine year old pupils of the Amsterdam elementary schools, 357 children were divided into two groups as follows: (1) 192 children with severe carious lesions, and (2) 165 children either free from caries or with isolated and comparatively mild carious lesions.

The children with severe carious lesions consumed far more sugar and various sweets than those free or almost free from caries. Dark (rye) bread, however, was more frequently consumed by the children with a low caries incidence than by those with a high caries incidence.

There appeared to be no relation between the quantity of rye bread consumed and the incidence of caries.

No statistically significant differences were found in children whose diet has been enriched by administration of vitamins A and D or calcium, and those who did not receive such addition to their diet; neither was there a significant difference in the caries incidence in children who brushed their teeth regularly and those who brushed their teeth irregularly.

Eating sugar or sweets between meals or before going to bed seems to be the most important factor in promoting caries.

Centraal Instituut voor Voedingsonderzoek T.N.O., Amsterdam, The Netherlands

Dental care: what do unions want?

Goldie Krantz. *Am.J.Pub.Health* 50:22-24 Jan. 1960

Dental needs are almost universal, even in our productive United States. The amount spent on dental care is not equivalent to the need.

The International Longshoremen's and Warehousemen's Union-Pacific Maritime Association Welfare Fund operates a children's dental program, now in its fourth year. The program is considered successful by all concerned—the dentists, the beneficiaries, the union and the employers. About one cent per manhour worked in the Pacific Coast longshore industry is spent on the dental program. Of the 12,000 eligible in the age group from birth to 15 years of age, 9,000 children go to the dentist.

The welfare fund's total program covers 18,000 workers and their dependents, some 50,000 persons, at a cost to the employers of 11 cents per hour worked. Since no substantial reserves are built up, all the income—about $4,000,000 annually—is spent on benefits. The health program is not comprehensive. No single industry can afford to cover the total health needs of its workers and their families. The Pacific Coast longshoremen's fringe benefits amount to 47

cents per hour, just for the cost of vacations, welfare and pensions; this does not include the 18 cents per hour cost of Workmen's Compensation, or 14 cents for Social Security.

At the bargaining table the problem for health and welfare funds today is how to secure more money to preserve existing benefits. Health services have the singular distinction of becoming more expensive every month.

In the few instances where unions have convinced the employers that dental health is a part of the health picture, they have had to settle for something substantially less than a comprehensive program. The ILWU selected a children's program because we felt we would gain the most from our limited dollar resources by getting the children started on good dental health habits. It made sense in terms of our philosophy and was consistent with our emphasis on preventive medicine.

There is no dental care program that completely meets the dental needs. What working people need is total health coverage, including complete dental care. We want a program administered efficiently, with sufficient dentists trained to provide the services needed, and sufficient research carried on in both preventive dentistry and dental therapy. This kind of comprehensive program is the responsibility of society and not of one industry. The only answer is programs paid for out of the tax dollar. The State of California has adopted a dental program identical to ours in fees, coverage and exclusions, providing dental care for 77,000 indigent children.

Under existing conditions, the best that can be hoped for is limited satisfaction of limited demands.

From the dental profession the unions expect recognition of the economic realities of society and of the fact that union members, too, are consumers. It is unrealistic to propose that union consumers embark on dental programs based on limitless resources.

Dentists should set forth a priority of needs. If a group has $50 per year per individual to spend, the profession should advise what care is most desirable and how it can best be handled.

We look to the dental profession for realistic organization of services. Dental societies can become so involved in the mechanics of incorporation and negotiating contracts and the terror of "creeping socialism" that nothing happens. Nor will the health needs be met with the belief that demand is being stimulated temporarily and will go away if it is ignored.

The fact that there are less than 100,000 practicing dentists in the United States indicates that dentists are not an expendable resource. The dental profession must think in terms of providing dental care wherever the opportunities are, and of doing so with the most creative and flexible kind of program. The U.S. Public Health Service, other governmental agencies and dental societies have the concurrent obligation now to gather all data necessary to plan programs that are efficient, economical and provide high-quality care. More should be done to make people aware of their need for dental care—possibly through manipulating the wants to equate the needs.

International Longshoremen's and Warehousemen's Union-Pacific Maritime Association Welfare Fund, San Francisco, Calif.

Decentralization of the orthodontic aspects of the dental rehabilitation program in Nassau County

David B. Ast. *Bul.Nassau Co.D.Soc.* 33:7:8-9, 20 Nov. 1959

In 1944 the Bureau of Dental Health of the New York State Department of Health called attention to the fact that severe malocclusions and other types of dental defects are physically handicapping as defined in the section of the Children's Court Act dealing with the rehabilitation of children with physically handicapping defects. The dental rehabilitation program now has been in operation for 14 years. In 1958, 1,386 children in New York state (exclusive of New York City) were under care and $319,802 was authorized for this care. Nassau County had 208 children under care in this program and $51,951 was authorized by the county and state for this care.

Treatment is provided by a qualified orthodontist, who may be chosen by the family.

Recently, this orthodontic program has been decentralized in Nassau County, to obviate the

necessity for the preparation of diagnostic aids, and to reduce paper work and costs. It is an objective of the State Department of Health to decentralize programs under its administrative direction, where practicable.

The new procedure will work as follows:

1. Children considered for the program will be referred to the Nassau County Health Department, as formerly.

2. The County Health Department will make an appointment for the child at the screening clinic held monthly at the Mercy Hospital.

3. Two orthodontic consultants appointed by the state's Bureau of Dental Health will examine the child and submit their recommendations to the bureau. The bureau will review the recommendations and notify the Nassau County Health Department whether state aid should be approved.

4. Ten months after active treatment has begun, the County Health Department, as before, will notify the orthodontist to prepare a progress report.

5. The patient will bring to the screening clinic the orthodontist's report and the original casts. At the clinic, the consultant will review the progress and make a recommendation concerning further care.

Formerly, the diagnostic aids were reviewed in Albany. The Nassau County Department of Health then investigated the financial status of the patient's family, and submitted a petition for state aid to the judge of the Children's Court.

Under the new program, orthodontic care is approved on a year to year basis.

Bureau of Dental Health, State Department of Health, Albany, N.Y.

Experimental caries: resistance and susceptibility in nine generations of Wistar rats fed on a purified sugar diet

Jaromyr Novotný and Lubor Mrklas.
Československ.stomat. 60:1-7 Jan. 1960

In nine generations of Wistar rats fed on a purified sugar diet, the influence of matings between siblings on the resistance and susceptibility to caries in the offspring has been investigated at the Dental Clinic of the University of Prague, Czechoslovakia. The conditions of breeding and the duration of the experiment were identical for the nine generations of rats.

In the first five generations descending from the matings between siblings, the caries incidence was comparatively low (on the average from 20 to 60 per cent of the incidence in experimental animals), and the molars were seldom involved. However, the time required to develop cavities in molars is not a reliable index of the genotype of an individual rat.

In the experimental animals of the sixth to the ninth generation descending from the matings between siblings, the caries incidence was significantly higher. In the ninth generation caries occurred in almost all the experimental animals involving mainly the molars. Heredity, therefore, seems to be an important factor in the development of caries in rats.

There are reasons for assuming that multiple prenatal factors are responsible for the differences in resistance or susceptibility to caries, but further experiments are required to confirm this hypothesis, to identify the number of gene pairs and to evaluate the physiologic and anatomic effects of these genes.

In the experimental animals descending from matings between half-siblings, the incidence of caries was significantly lower than in animals descending from matings between brothers and sisters. By mating between siblings of nine generations of Wistar rats, fed on a purified sugar diet, a highly susceptible type of rat has been produced which may serve as an excellent experimental material for investigation of the chemical prevention of caries.

The study demonstrates the influence of genetic factors on the susceptibility or resistance to caries, at least in experimental animals, and shows that simple matings between siblings without the use of selection increases the susceptibility to caries in the entire offspring.

Many observers have reported that some human families show an early and comparatively high incidence of caries which probably is due to a hereditary familial susceptibility and not to environmental factors.

Výzkumný Ústav Stomatologický v Praze, Prague, Czechoslovakia

Forensic dentistry

Identification of corpses with the aid of dental charts: report of three cases

Gösta Gustafson and Gunnar Johanson. *Stoma* 12:200-205 Nov. 1959-Jan. 1960

In Sweden, a country with a comparatively high incidence of dental caries and periodontal disease but with an excellently functioning dental health program, dental practitioners are often called upon to identify corpses through comparison of the dental conditions with dental charts.

The identification of corpses, especially those of young children and senescent persons, still offers difficulties because, in the former, the deciduous teeth often show no sign of the presence of restorations and in the latter, the mouths usually are edentulous.

Three case reports are presented in which the police authorities had been unable to identify the corpses, whereas the dentist succeeded by comparing the oral and dental conditions with the dental charts.

In the first case, the corpse of a young girl, who had been found at the beaches of Malmö after obviously having been in the water for several months, gave no identifying clues because her facial contours as well as her clothing were completely destroyed. Her dentition, however, showed that restorative dental work had been performed on the first and second upper and lower molars.

These established data were published in Swedish and Finnish dental journals. Based on the dental chart, kept at a Stockholm dental office, the dentist identified the corpse as that of a Finnish girl he had treated three years previously.

The second case, the corpse of a middle-aged man which had been found east of the Bornholm island near the Danish coast of the Baltic Sea, also provided no external identifying clues. The complete dentition showed a single amalgam filling in the left upper first molar. Two months previously, a Danish fishing vessel with a four-man crew was shipwrecked near the island, and no member of the crew had been found. The incident was widely publicized in the Danish and Swedish daily press. The dental charts of all four sailors were examined and only one of them had had an

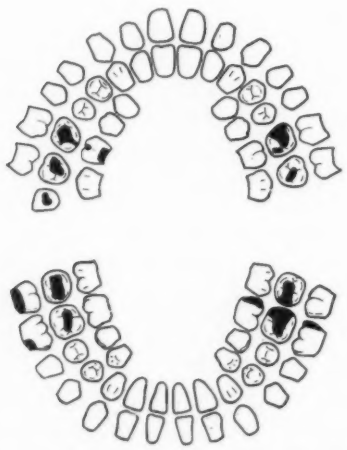

Figure 1 Dental chart of a 27 year old Finnish girl, treated by a Swedish dentist, showing several amalgam fillings. The dental practitioner accurately identified the corpse

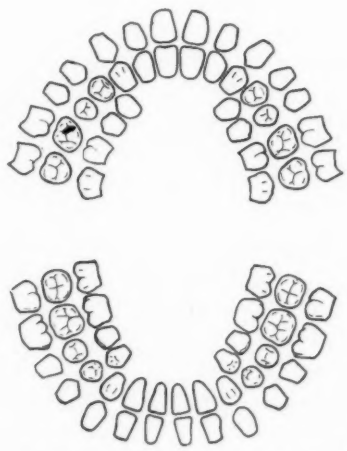

Figure 2 Dental chart of a middle-aged Danish sailor, showing an isolated amalgam filling. The dentist was able to identify the corpse although the filling had been inserted more than 20 years prior to death

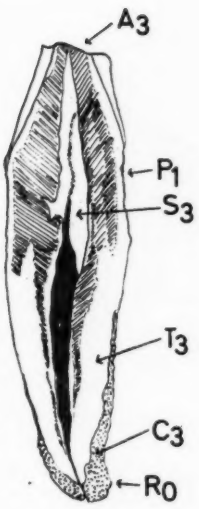

Figure 3 Diagram of a tooth showing the changes in structure due to the aging process. The age of the corpse (between 70 and 75 years) was estimated by a point system (13 points), thereby permitting identification of the corpse

isolated filling done when he was 14 years old. The identification by the dentist, therefore, was easy.

The third case involved the corpse of an old man who had been found buried at a farm, and the external conditions were such that no accurate identification was possible. The Missing Persons Bureau of the district established that during a period of three years three men were reported missing, one 45 years old, one 60 years old and one 75 years old. The few remaining teeth in the skull of the corpse showed no signs of restorative work. Identification, therefore, depended on determining the correct age based on the changes in tooth structure. The remaining three teeth were investigated by a scientifically trained dentist who estimated the age of the person as being between 70 and 75 years, permitting thereby an accurate identification.

These three case reports demonstrate the possibility and reliability of identifying corpses by means of dental charts or age determination. It appears that in instances in which only a few dental features are available, a positive identification can be made.

Royal Dental College, Malmö, Sweden

Liabilities of hospital, surgeon, and anesthetist for loss of teeth during surgery

J.A.M.A. 172:90 Jan. 2, 1960

While inserting a tube into the plaintiff's windpipe in order to supply the lungs with oxygen, the anesthetist heard a faint noise like the cracking of glass. She removed the laryngoscope and examined the patient's mouth. The facing of a tooth came loose and fell into her hand. A peg for a tooth was revealed, together with a vacant space next to the peg. At the conclusion of the operation, the anesthetist told the surgeon that one of the patient's teeth had disappeared while the anesthetic was being administered.

The next day the patient informed the anesthetist that the missing bridgework consisted of two teeth, and the anesthetist told this to the surgeon. Shortly thereafter, the plaintiff developed an unproductive cough. This was noted by the surgeon in the hospital records, but no roentgenograms were taken in an attempt to locate the missing teeth. When the cough persisted for several weeks, the anesthetist suggested that the teeth may have lodged in the patient's lungs. Roentgenograms were then taken and the teeth located in the bronchus and removed.

The plaintiff sued for damages the surgeon, the anesthetist and the hospital. Judgments being rendered for the defendants, the plaintiff appealed to the Supreme Court of Florida.

That court said that there was no occasion to disturb the ruling that the hospital and the surgeon were entitled to a verdict of not guilty, and that the principal question was as to the liability of the anesthetist. The Supreme Court of Florida held that the plaintiff was entitled to have a jury decide whether the anesthetist was chargeable with negligence. Accordingly, the judgments in favor of the hospital and surgeon were affirmed and the judgment in favor of the anesthetist was reversed. *Dohr v. Smith,* 104 So. (2d) 29 (Fla., 1958).

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Dentistry around the world

Public dental health service in Israel

Berta Weigand-Fellinger. *Zahnärztl.Mitt.* 48:148-151 Feb. 15, 1960

The public dental health service in Israel, functioning under the supervision of the Israeli Public Health Ministry, not only has the usual goals of improving measures to treat and prevent dental and oral diseases but also those consisting in recruitment and education of dentists (dental specialists, especially public health dentists), dental hygienists, assistants and laboratory technicians.

In 1957, in a test to evaluate approximately the incidence of dental caries in Israeli children, the pupils of the elementary schools (between 13 and 14 years old) were examined throughout the country. The results revealed that the prevalence of caries in these children was significantly lower than in the school children in the United States, Great Britain and the Scandinavian countries. School children either immigrated from the Middle East or of Arabian ancestry but born in Israel showed a lower caries incidence than those immigrated from Europe. The DMF index average was as follows: (1) 369 Jewish children born in Arabia had an average DMF index (per 100 children) of 203; (2) 587 Arabian children born in Israel, 227; (3) 565 Jewish children born in North Africa, 234; (4) 561 Jewish children born in Iran or Iraq, 235; (5) 1,946 Jewish children born in Europe, 285; (6) 214 Jewish children born in Israel, 293, and (7) 156 Jewish children born in Egypt, Lebanon or Syria, 303.

Pathologic changes in gingival and periodontal tissues, discovered at examination, reflected the different standards of life, the individually used general and oral hygienic measures and the regionally determined dietary and nutritional conditions. Periodontal disease was most frequent in children born in North Africa or Arabia. There was a statistically significant difference in the incidence of periodontal disease between children residing in the urban regions of Israel and those from rural areas (*kibbutzim*). Also the occurrence of tooth irregularities and malocclusons was observed more often in children residing in the rural areas than in those living in the cities (Jerusalem, Haifa or Tel Aviv).

Although caries-preventive procedures have been planned, no fluoridation program has yet been initiated.

In 1947, the country had 842 dentists (718 were Jewish and 64 non-Jewish). In 1957, 989 dentists practiced in Israel assisted by 389 "dental practitioners" without diploma but temporarily licensed to practice dentistry. This gave a seemingly favorable dentist-patient ratio of 1:1,000. The dental profession in Israel, however, suffers from the comparatively high age of the practicing dentists. Only 6 per cent of the dentists were less than 30 years old; 13.5 per cent between 30 and 39 years; 28.0 per cent between 40 and 49 years; 29.0 per cent between 50 and 59 years; 13 per cent between 60 and 69 years, and 10.5 per cent above 70 years old. The average age was 52.3 years.

In spite of the immigration of younger dentists and the graduation from the Dental College of the Hebrew University of Jerusalem, the only dental school in Israel, the percentage of old dentists is still increasing. Of the 989 practicing dentists, 45 per cent are women.

The rural population of Israel composes 26 per cent of the entire population. However, only 11.6 per cent of the dentists reside and practice in these rural regions.

The Israeli public dental service, as well as the other health departments associated with the Public Health Ministry, despite the many adverse circumstances, has obtained a high standard in general health which is comparable to that in most highly civilized countries. That this progress will continue is the wish of international dentistry.

A satisfactory and close relationship between public health officers and members of the dental profession is and always has been a characteristic feature of the public health service in Israel.

Deutzer Freiheit 90, Köln-Deutz, Germany

First building of the Dental Institute (1884–1912)

Education

History of the Dental School of the Humboldt University of Berlin

Josef Münch. *Deut.Stomat.* 10:81-85 Feb. 1960

In 1959, the Dental School (Klinik und Poliklinik für Zahn-, Mund- und Kieferkrankheiten) of the Humboldt University (Charité) of Berlin celebrated the seventy-fifth anniversary of its creation.

The Humboldt University, one of the most important educational institutions of Germany, is situated in East Berlin, the capital city of the East German Democratic Republic. The university, under the name of "Charité," was founded 250 years ago, but in 1810 the name was changed to Humboldt University in memory of the renowned German scientist and statesman, Alexander von Humboldt (1769-1859).

Formal dental education in Berlin had its beginning with the founding of a privately owned dental school by Dr. Albrecht who taught the various subjects of dentistry to dental students (1864-1883). After his death, the University Dental Institute was founded in 1884 and headed by Professor Busch, an oral and general surgeon. Most prominent in the organization of the institute were Professor Sauer and Professor Warnekros of the prosthodontic department and Professor W. D. Miller (educated in the United States) of the department of operative dentistry. Miller's findings in the fields of etiology of dental caries and diseases of the pulp are still valid.

The first location of the old Dental Institute was at Dorotheenstrasse 40, a three-story building. In 1912, however, the Dental School of the Humboldt University moved to its present site, a five-story building at Invalidenstrasse 87-89.

Under three deans, Willinger, Schröder and Dieck, the school became one of the most important centers of German dental education. During a period of almost 50 years, it has contributed many distinguished men to the German and international dental profession, among them the prominent educators and researchers Wannenmacher, Harndt, Häupl, Kirsten, Hönig, Axhausen and Rosenthal. Many of these men became later deans of other German dental schools.

At present, the author functions as the dean of the school and as the head of the department of operative dentistry. The oral surgical department is headed by Hoffman-Axthelm; the prosthodontic department by Roghé, and the orthodontic department by Brückl. Recently, a department of dental research was created mainly to study the problems associated with the etiology, prevention and therapy of dental caries. The formation of other departments (pedodontics, periodontics, oral pathology, and public health dentistry) is in the planning stage.

The Dental School of the Humboldt University started a definite trend in Germany toward having

Present building of the Dental School (1912–1960)

a greater volume of practical work done on patients by faculty members and students at the school's own clinic, polyclinic and hospital.

Invalidenstrasse 87/89, Berlin N 4, Germany

Survey report on the use of closed-circuit television in dental schools of the United States

Michael T. Romano. *J.D.Educ.* 24:56-60 March 1960

To survey the use of closed-circuit television in dental schools, a questionnaire was sent to the 46 dental schools in the United States. Forty schools responded.

Sixteen dental schools now are using closed-circuit television in their teaching programs, 13 plan to utilize television in the near future, and 11 schools do not intend to use television. Lack of funds seems to be a major factor in preventing more schools from utilizing television. Although one school has a system costing $125,000, it is possible to initiate closed-circuit facilities for $2,000.

Some schools have installed and operated television systems without having to employ additional personnel, by utilizing school maintenance men for installation, and by using the help of faculty members and students for operation of the equipment. Some schools using television met resistance from the faculty.

Television's greatest value in dental education is in its use as an image magnifier and multiplier. Its effectiveness is limited only by the effort and imagination employed in its use.

The number of viewers per monitor ranges from 4 to 65. Most of the television installations in dental schools provide for two way communication.

School of Dentistry, University of Pennsylvania, Philadelphia, Pa.

Filatov and the tubed pedicle

A. J. Barsky. *Plast. & Reconstr. Surg.* 24:456-462 Nov. 1959

On September 9, 1916, Vladimir Petrovich Filatov performed the first tubed pedicle operation, although he had been contemplating the method since 1914 and had tested the operation in animals.

The first stage was the preparation of a cervical tubed pedicle, with the patient under local anesthesia, to be used for the repair of a lower eyelid. The second stage, after 20 days, consisted in lining the flap at the lower end of the tube with mucous membrane taken from the lip. In the third stage, after four days, he excised the lesion on the lower eyelid and migrated the lined flap into position. At the fourth stage, three weeks later, he transplanted additional oral mucosa for lining purposes, and severed the pedicle after one week. Six weeks later, he ablated the remnant of the pedicle and retained a specimen for microscopic examination.

On November 22, 1916, Filatov reported his operation and presented the patient at the Odessa Ophthalmological Society. He published an account of the new surgical technic in the *Vestnik Oftalmologii* in the April-May issue, 1917.

Filatov's work was immediately taken up by other surgeons who promptly began to use the tubed pedicle method for repair of various defects.

If it were not for the political crisis after World War I, Filatov's method might well have been known earlier in the Western countries, either directly or through the reports of the meetings of the Russian Surgical Association which were published regularly in peacetime in the German literature. That at that time the Western world heard nothing of Filatov's work is not surprising. Later, however, in three different places, rediscovery of the tubed pedicle method occurred al-

most simultaneously, hastened perhaps by the pressure of wartime surgery.

Hugo Ganz of Berlin recommended the tubed pedicle method for repairs of defects in the maxillofacial region. H. D. Gillies, an English surgeon, and two French oral surgeons, V. Veau and Le Mesurier, described a modified technic of Filatov's method for primary and secondary corrections of cleft palate, cleft lip and cleft jaw.

Vladimir Petrovich Filatov was born on February 28, 1875. His father, Fedorovich Filatov, was a prominent ophthalmologist, and two of his brothers were physicians. One of them, Nil Fedorovich Filatov, described the small bluish-white spots surrounded by a reddish areola on the mucous membranes of lips and cheeks during the prodromal stage of measles which are known in the United States as "Koplik's spots" and in Russia as "Filatov spots."

Vladimir Petrovich Filatov, as chief of the Odessa Medical Institute, made a number of lecture trips to Paris, Berlin, Vienna, Munich and Prague, and his tubed pedicle method became widely known.

He died, 81 years old, on October 30, 1956, in Odessa, and ended a long, distinguished and successful career as a clinician, surgeon, educator and administrator, and left behind also a notable reputation as a poet and painter.

174 East Sixty-first Street, New York 21, N.Y.

The cleft palate team—a historical review

Herbert R. Kobes* and Samuel Pruzansky.
Am.J.Pub.Health 50:200-205 Feb. 1960

About 1930, changes in the care of people with cleft palate began to be brought about by the following four factors: (1) the concept of the whole child; (2) the study and application of knowledge about growth and development; (3) the inadequacies arising from the rigid compartmentalization developing in specialty medical practice, and (4) the formation of teams to deal with complex health problems.

The 1930 White House Conference helped to develop the first two factors. The passage of the Social Security Act in 1935 gave impetus to a nationwide interest in the care of children with cleft palate. Through Part II of Title V of this act, crippled children's programs were set up in all states and territories.

In 1938 at Lancaster, Pa., Herbert Cooper established the first recognized cleft palate clinic in the United States.

The American Academy of Cleft Palate Prosthesis was founded on April 4, 1943, at Harrisburg, Pa., by Herbert Koepp-Baker, then director of the Speech Clinic at Pennsylvania State College, and Cloyd S. Harkins, of Osceola Mills, Pa., a dentist active in cleft palate prosthesis work. Gradually it was recognized that a broader viewpoint was necessary, and in 1949 the Academy was reorganized, the basis of membership was broadened, and the organization was renamed the American Association of Cleft Palate Rehabilitation.

In April 1946 the Division of Services for Crippled Children of the University of Illinois sponsored a conference of the many authorities in the cleft palate field who rendered service to children with cleft palate in Illinois. In 1946 the Illinois program began to provide for the patients to be observed by pediatricians, orthodontists, surgeons, speech pathologists and public health nurses from the earliest possible time. Cleft palate teams were organized in medical and dental centers. The first of these centers in Illinois was initiated by the Northwestern University Dental School. Four others, including the Training Program at the University of Illinois, now are available in Illinois.

The program planning section of the federal Children's Bureau in 1947 published "Suggested Principles for a Training Program in Care of Children with Cleft Palates." This document, and the availability of special training funds, made it possible for the University of Illinois' College of Dentistry, College of Medicine and the Division of Services for Crippled Children to launch a training program to provide additional knowledge to specialists relating to all aspects of the cleft palate problem. The Cleft Palate Training Program stressed the need for cutting across department and even college lines to handle the complex problems of these patients, and the program taught people who had not been accustomed to work together how to cooperate successfully. It taught individuals to respect the knowledge and competence of others. It has been found that a

chief deterrent to harmonious teamwork is caused by the professional jargon which the different specialties have developed.

Much has happened in the past 30 years to improve the fate of children with cleft lips and cleft palates. It is hoped that what has been learned through teamwork in the cleft palate field can be extended to aid in the solution of other complex problems.

University of Illinois Cleft Palate Training Program, Chicago, Ill.

* Deceased.

Better than a get well card

David M. Keil and Bernard Yanowitz.
J. Dist. Columbia D. Soc. 35:17-18 Feb. 1960

A major shortcoming of dental practice is that when the dentist is sick or disabled, many of his expenses continue but his production drops to zero. A plan to overcome this shortcoming has been tested by a group of dentists in Washington, D. C.

Dentists have organized as a group, to help each other in time of need. If one gets sick or has an accident, the other dentists take turns in serving in his office four half-days a week, one of which is on Saturday. With a group of ten dentists, this means that each member is committed to serve only a half-day every third week and a half-day on Saturday every nine weeks. This is no hardship for any member, but the combined effort of the group keeps the practice active and provides a continuity of income for the affected dentist. The group has adopted the following rules:

1. The group shall be limited to ten dentists. Members wishing to resign must give proper notice.

2. A new member may be added only on the resignation of an old member, and only by unanimous, closed ballot.

3. In the event of illness or accident involving a member, the group will act at the request of the ailing member.

4. The office of the ailing dentist will be covered four half-days a week, one of which will be on Saturday.

5. A conference to re-evaluate the situation will be held after three months of operation. The group will terminate its work after about six months.

6. The order of work will be determined by two drawings: one for weekdays and one for Saturday.

7. The group will have a manager whose job it will be to administer the rules and initiate action. The manager serves for one year.

8. Each member is responsible for serving on his chosen day, but a substitute from the group can be arranged by him for his day.

9. A member with a minor illness not requiring coverage by the group will be required to serve his turn if he can work in his own office.

10. All income must go to the ailing member.

11. The working member is allowed to use his own judgment in ordering supplies.

12. All work will be done in the office of the ailing member, as scheduled by his dental assistant.

13. In the event of the sudden death of a member, the widow will be reminded of the group's services and the group will carry on the practice of the deceased member for a maximum period of three months if the widow so requests. The group also will help to dispose of the practice and render assistance to the widow.

Experience with this plan has been very satisfying. The reaction of patients has been good. The plan produces enough income to cover at least the overhead expenses of the office. Most important, when the dentist recovers he can return to an active, orderly practice.

Each dentist tries to render the same service in his colleague's office that he would render to his own patients.

The plan is intended to supplement, but not to replace, insurance. The plan is applicable to groups of oral surgeons, orthodontists or general practitioners. The plan may be modified to fit the needs of each group.

3016 Nichols Avenue Southeast, Washington, D. C.

General

The value of stomatoscopy for an early recognition of oral tumors

H. Scheunemann. *Deut.zahnärztl.Zschr.* 14:1595-1597 Nov. 15, 1959

Any of the soft tissues which form the lips, cheeks and the intraoral parts of the mouth may undergo neoplastic changes resulting in the development of various types of tumors. Both benign and malignant neoplasms are frequently observed in these sites during dental examinations, sometimes in their early stages of development.

Fibroma, papilloma, hemangioma, lymphangioma, myoma and other tumor types as well as the so-called "precancerous" lesions often can be treated successfully if recognized at an early stage.

The utilization of an instrument, resembling Hinselmann's colposcope, for the diagnostic observation of pathologic changes occurring within and adjacent to the oral cavity, was suggested by Morgenroth in 1957. He also created the terms "stomatoscope" and "stomatoscopy" which have been accepted by the dental profession.

The value of stomatoscopy for an early recognition of oral tumors by dentists was investigated at the department of maxillofacial surgery of the West German Dental College of the Medical Academy of Düsseldorf, Germany.

The following conclusions were reached:

1. The optical enlargements provided by use of the stomatoscope may in certain instances, but not in the early stages of tumor development, facilitate the diagnosis of pathologic, neoplastic changes occurring in oral tissues.

2. Use of stomatoscopy during oral or dental examinations is of no significant help in the differentiation of benign lesions from malignant tumors.

3. The macroscopic observation of any pathologic change in the oral cavity requires immediate histologic examination whether or not the suspicion of carcinoma has been intensified by simultaneous stomatoscopic findings, which alone cannot be used as a diagnostic means to recognize the presence of early malignancy.

4. The dentist, using the stomatoscope, still will often find oral lesions diagnostically confusing because some of them are, or could be, oral manifestations of diseases present in other parts of the human body.

5. Stomatoscopic examinations, whatever the result may be, cannot relieve cancerphobia of dental patients because many suspicious conditions require prolonged observation, and stomatoscopic diagnosis is by no means obvious.

Although there is sufficient evidence that the colposcope has proved useful in the examination of the vagina and in recognition of some pathologic changes occurring within and adjacent to the vagina, the applicability of the stomatoscope, based on similar optical principles, is limited, probably because of the different anatomic architecture of the oral and the vaginal cavities.

Himmelgeisterstrasse 152, Düsseldorf, Germany

Direct artificial respiration: training with the Brook airway

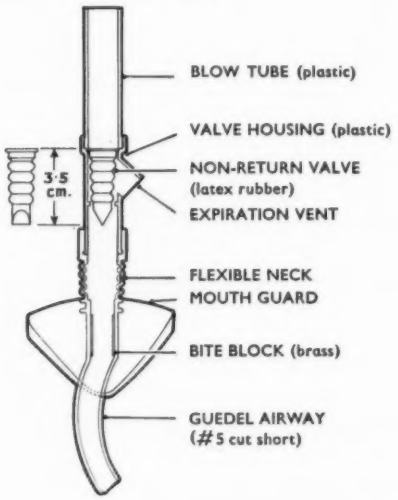
Allen B. Dobkin. *Lancet* No. 7104:662-663 Oct. 24, 1959

An oral airway, known as the Brook airway, has been developed at the University of Saskatchewan. The airway (Fig. 1) is inexpensive, simple to clean and maintain, easy to use even after a brief demonstration, and effective in providing direct artificial respiration in a wide variety of emergencies.

The airway consists of three main components: (1) a clear vinyl plastic Guedel airway with a flexible neck containing a brass bite-block and a mouth guard. The oral portion of the airway has been cut short. Correct introduction provides a clear airway and seals the mouth so that air passes into the lungs without leakage; (2) a vinyl plastic unidirectional valve assembly that consists of two parts: a rigid plastic housing, 5 cm. long, which contains a snug-fitting, slightly tapered, corrugated latex rubber valve, and (3) a disposable rigid vinyl plastic blow tube 6 cm. long.

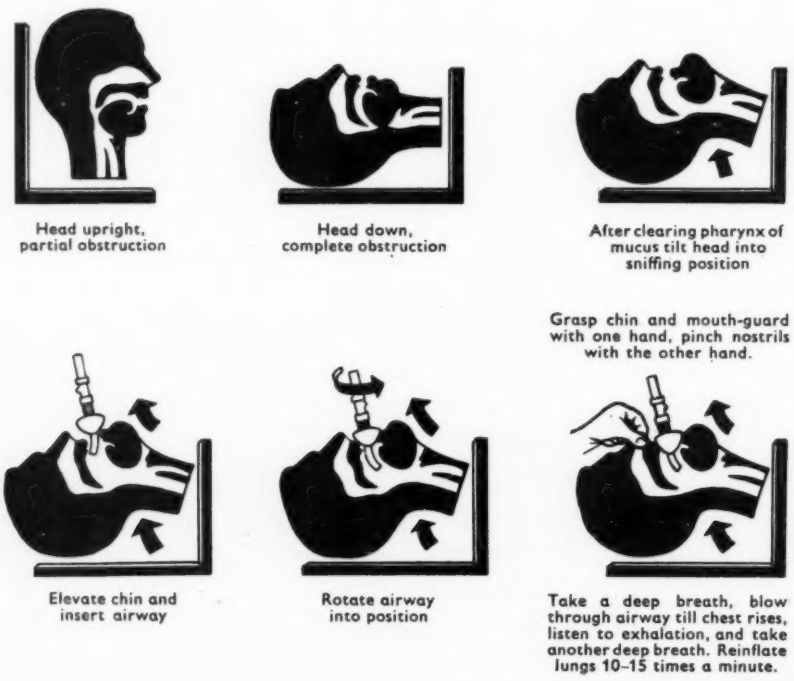
Expired air or oxygen blown into the tube encounters a resistance in the valve of less than 0.5 cm. of water. No air entering the blow tube can leak around the valve through the expiratory vent. Return flow of expired air cannot enter the valve, and it escapes from the vent when the pressure exceeds about 1.5 cm. of water. The components of the airway can be taken apart easily in a moment. If the victim's pharynx must be cleared by suction, the blow tube and valve assembly can be detached and a suction catheter may be passed into the pharynx. The oral portion of the airway is long enough to establish a clear airway over the tongue without causing gagging or retching in the conscious patient.

Figure 1 The Brook airway



The author has designed a one-hour course for the lay public and rescue teams in use of the Brook airway. Instruction is verbal, visual and mechanical. The course consists of: (1) a brief historical description of artificial respiration, illustrated with ten slides; (2) a 30-minute, 16 mm. motion picture in color, "Breath of Life," picturing the comparative effectiveness of the various methods of artificial respiration; (3) a mechanical demonstration with an air-passage model and a plastic mannikin permitting the students to learn the precise technic and to practice without use of human volunteers. The demonstrations are followed by personal trial by each trainee on the mannikin.

Figure 2 Airway-passage model used to demonstrate direct artificial respiration


Head upright, partial obstruction
Head down, complete obstruction
After clearing pharynx of mucus tilt head into sniffing position
Grasp chin and mouth-guard with one hand, pinch nostrils with the other hand.
Elevate chin and insert airway
Rotate airway into position
Take a deep breath, blow through airway till chest rises, listen to exhalation, and take another deep breath. Reinflate lungs 10–15 times a minute.

The airway passage model (Fig. 2) has hinges that allow extension and flexion of the head on the neck, opening and shutting of the mouth, and depression or drawing forward of the mandible.

If such instruction is carried out in classrooms or on television programs, it will save many more victims of serious accidents and emergencies than have been saved in the past by the indirect (manual) methods of artificial respiration.

College of Medicine, University of Saskatchewan, Saskatoon, Canada

The American dentist and his profession: an historic episode is prelude to significant phases of the present

Editorial. *Bus.Screen* 20:40-41 Nov. 15, 1959

On the occasion of its centennial celebration, the American Dental Association found itself in the headlines by its refusal to yield the ballroom of the Waldorf-Astoria Hotel in New York to an intended "Welcome Khrushchev" affair.

News of another type—not as sensational but of more lasting significance—was the release of a documentary survey of dentistry in mid-century in the form of an unusual and provocative motion picture entitled "Pattern of a Profession."

The film explores the dental profession thoroughly, its background, ethics, research and special achievements. The story leads from the visual impression of the dental office to the horizons of the dental profession. The author, Leo Hurwitz, conceived his story as "an exploration of the unknown behind the familiar."

Within its framework, the 51 minute film presents five major sequences. The first is a creative section indicating the background of dentistry by re-enacting the dramatic failure of Horace Wells in presenting to the medical profession his discovery of anesthesia in 1845. The second sequence consists of the visualization of dental schools seeking the answer to the question: "What must a dentist know?" The third sequence, exploring the world of dental research, presents the fascinating sphere of scientific endeavor in dentistry and its significance in insuring a lifetime of dental health. The fourth sequence gives a view of the public health dentist and some insight into how he serves the community at large. The fifth sequence is a brief but effective characterization of the dentist as an organization member. Here, clearly etched, appears the heart of the profession, because "the professional man never works alone. . . . it is through professional societies, local, national and international, that he embodies the high demands of his work: the strict standard for education and practice, the guidance of a national research program, the obligations to fellow dentists and patients, the ethical principles of a healing art."

The end provides the climax of the film—the work of a great dentist and a great man, Herbert Cooper of the Lancaster Cleft Palate Clinic, who stated: "The human face is not simple because behind it are far more subtle needs and feelings . . . but it is the place where the soul meets the world; and if the face is crushed or crippled, the being behind it will have trouble and tragedy with its world."

When this film was conceived it was hoped by the American Dental Association that many of the erroneous concepts of the public would be eliminated and that a new, more accurate image of the dental profession would take place. This object has been accomplished. Dentists have found a new insight into their profession, and lay people have found an entirely new basis for their attitude toward the dental profession.

7064 Sheridan Road, Chicago 26, Ill.

[Medical and dental officer personnel for the armed services]

Frank B. Berry. *U.S. Armed Forces M.J.* 11: ii, 118 Jan. 1960

Five years ago the problem of medical and dental officer personnel for the armed services was acute. Various prerogatives of control were shared by three agencies: the Selective Service System, the Health Resources Advisory Committee, and the Assistant Secretary of Defense (Health and Medical) in collaboration with the Assistant Secretary of Defense (Manpower, Personnel and Reserve). About 50 per cent of the medical graduates already had fulfilled their military obligation either in World War II or subsequently. From 1950 to 1954, because of the Korean conflict, it was necessary to draft

4,700 and 2,700 physicians in alternate years. This required that many in the reserve were called on for extra periods of service. Those who had acquired their medical education at the expense of the government or who previously had been declared essential were reviewed; many were called, often with much wailing.

With the cooperation of the interested agencies, the Armed Forces Reserve Medical Officer Commissioning and Residency Consideration Program (Berry Plan), and the Senior Medical and Dental Students Programs were initiated. The senior programs provided that students be commissioned during their final year in medical and dental school as second lieutenants with full pay and allowances; in return, these graduates were obligated for an extra year of service beyond the usual two years. The residency programs of the armed services also had an effect. These programs, together with the increasing number of graduates who had never had military service, produced immediate improvement. The result was that there has been no draft for dental officers for the past four years, and none for medical officers for three years. There will be no draft for either in the ensuing year. The annual deficit unfilled by these programs is about 1,700 medical officers; thus, the former peaks and valleys have disappeared.

The enactment of the Medical and Dental Officer Career Incentive Act in 1956 was a further step taken to alleviate the situation. In the period from 1954 to 1959, the average resignation rate of dental officers declined from 7.3 to 0.5 per cent; that of medical officers declined from 12.5 to 2.3 per cent. In the same period, applications for regular officers' commissions increased from 1,369 to 2,065 in the Dental Corps, and from 3,272 to 4,787 in the Medical Corps. Today, the needs of the armed services for dental and medical officers can be met largely both by true volunteers and by the group of "obligated volunteers."

Department of Defense, Washington, D.C.

The Ainu settlement in Hokkaido, Japan

O. Bossert. *Therap.Gegenw.* 10:345-357 Oct. 1959

The native Ainu settlers of Hokkaido are racially closely related to—if not identical with—the original inhabitants of Japan during the Neolithic Age (about 10,000 B.C.).

The Ainu of modern times are extremely reduced in numbers (about 15,000), and appear to be dying out. Many of the Ainu settlers of Hokkaido have intermarried with Japanese from Sakhalin and the Kurile Islands.

Physically unlike their Mongoloid neighbors, Ainu probably are descendants of an early Caucasoid type that once widely spread over northern Asia. There seems to exist a relationship between the Ainoid type of Japan and the Australoid type of Australia and New Guinea.

Short of stature and dark brunette, Ainu have the most profuse body hair of any known human group. Ainu language, with a number of dialects, has no known relation to any other language.

The Ainu settlers of Hokkaido live in small villages near the sea, with hunting, fishing and gardening as economic activities. Their houses are built from reed thatch, and formerly included pit dwellings.

Ainu men usually have heavy beards, and the women mustachelike tattooing around the mouth. The face is unusually wide and the lips are bent outward. Ainu do not have the "slanting" eyes of Mongoloids. Ainu have a cephalic index of from 81 to 85 and can, therefore, be considered brachycephalic. The circumference of an Ainu skull exceeds that of a Japanese skull by about 3 cm. About 30 per cent of the Ainu of Hokkaido have teeth with a characteristic pearly enamel.

Many aspects of Ainu life show Japanese influences, and especially the younger generation of Hokkaido shows extensive adaptation to modern Japanese civilization.

Strasse des 17. Juni 112, Berlin-Charlottenburg 2, Germany

New equipment

The information reported here is obtained from manufacturers. Dental Abstracts *does not assume responsibility for the accuracy of the information. The interested reader may direct his inquiry to the manufacturer.*

The "Turret-Tamp" is a combination paper towel holder and waste receptacle with automatic tamping action that presses down its contents of used paper towels every time the foot pedal opens the door for the deposit of more waste. One, two or three towel dispensers may be mounted on the turret. There is a locked compartment for storing clean towels. The unit is 59 inches high and is available in two sizes, 15½ inches square and 20 inches square. *D. J. Alexander Corp., 2944 E. Venango St., Philadelphia 34, Pa.*

"Duraflow" veined concentrate is a heavy concentration of red fibers suspended in fine Duraflow powder. It is designed to facilitate the veining of any self-curing acrylic resin in denture construction or repair. The concentrate is packaged in 630 cc. bottles. *Products Research Laboratories, Inc., 90 Hamilton St., Cambridge, Mass.*

A new, plastic "Ped-O-Flo" foot-operated surgical soap dispenser has an unbreakable one-quart polyethylene soap container with a large top opening for easy refilling. The dispensing unit is attached to the wall on either side of or above the lavatory. A small gray rubber tube connects the dispensing unit with the foot bellows beneath the lavatory. The amount of soap ejected can be regulated to deliver drops or ounces at each depression of the foot bellows, by means of a stainless steel needle valve. *Peck's Products Co., 610 E. Clarence Ave., St. Louis 15, Mo.*

A new x-ray screen specifically designed for dental use protects the dentist and auxiliary personnel from scattered radiation. The unit is easy to install and use. It has an extruded aluminum frame and hard plastic finish, and requires only 24 inches of wall space when closed. It has a 48 square inch shielded window and a hook for the x-ray control. The screen is available in heights of 48 inches and 66 inches, finished in eggshell or wood grain limed oak. *Ray Proof Corp., 843 Canal St., Stamford, Conn.*

Doctoral and Masters' dissertations

In this column each month are listed recent Doctoral and Masters' dissertations of dental interest, accepted by the dental schools or graduate schools in partial fulfillment for advanced degrees. Copies of many of these theses are available from the schools through interlibrary loan.

Layering in dental caries as demonstrated by localization of dyes. *William Arthur Miller. 1959.* M.S. *University of Illinois.*

Cinefluorographic studies of the masticatory movements of the human mandible. *John Joseph Scully. 1959.* M.S. *University of Illinois.*

Histochemistry of bone matrix during rest and resorption. *James Amos Yaeger. 1959.* PH.D. *University of Illinois.*

Effects of several sterol derivatives and of thioacetic acid on ascites tumors in mice (Einwirkung einiger Sterinderivate und von Thioaceticsäure auf den Mäuse-Ascites-Tumor). *Walter Besek. 1959.* DR.MED.DENT. *University of Heidelberg, Germany.*

Investigations of tooth anomalies after extraction therapy (Untersuchungen von Gebissanomalien nach Extraktionstherapie). *Cecilie Rebhann. 1959.* DR.MED.DENT. *University of Heidelberg, Germany.*

Roentgenographic study of the developmental condition of germs of the first and second bicuspids in girls between six and eleven years old (Eine Röntgenstudie über den Entwicklungsstand der Zahnkeime des ersten und zweiten Prämolaren bei sechs zu elfjährigen Mädchen). *Lisl Stamer-Hasse. 1959.* DR.MED.DENT. *University of Kiel, Germany.*

Experimental investigation of the protein content of dentinal fluid based on the determination of the entire content of nitrogen and of residual nitrogen by use of the biuret test in elutriated dentin of cattle and pig teeth (Experimentelle Untersuchungen über den Eiweissgehalt im Dentinliquor auf Grund der Bestimmung des Gehalts an Gesamtstickstoff und Reststickstoff mit der Biuretmethode im Dentineluaten von Rinder- und Schweinezähnen). *Peter Fuchs. 1959.* DR.MED.DENT. *University of Kiel, Germany.*

Experimental investigation to determine the activity of the alkaline phosphatase in the dentinal fluid of cattle and pig teeth (Experimentelle Untersuchungen zum Nachweis der Aktivität alkalischer Phosphatasen im Dentinliquor von Rinder- und Schweinezähnen). *Gabriele Schwan. 1959.* DR.MED.DENT. *University of Kiel, Germany.*

Measurements of the physiologic tooth mobility of the upper lateral incisors (Messungen der physiologischen Zahnbeweglichkeit der oberen Seitenschneidezähne). *Günter Bredau. 1959.* DR. MED.DENT. *University of Mainz, Germany.*

Relations existing between chronic pulpitis and focal infections (Beziehungen zwischen der chronischen Pulpitis und Herderkrankungen). *Werner Bresink. 1959.* DR.MED.DENT. *University of Mainz, Germany.*

Evaluation of the alkaline phosphatase in human teeth (Die Bestimmung der alkalischen Phosphatase in menschlichen Zähnen). *Horst Baumgärtner. 1960.* DR.MED.DENT. *University of Mainz, Germany.*

Clinical investigation of the caries-reducing effect of tooth pastes containing fluorine (Klinische Untersuchungen über die karieshemmende Wirkung fluorhaltiger Zahnpasten). *Carl Kraut. 1960.* DR.MED.DENT. *University of Mainz, Germany.*

Influence of roentgen-rays on the permanent growth of the gnawing teeth of rats (Einfluss der Röntgenstrahlen auf das permanente Wachstum der Nagezähne der Ratten). *Otto Braun. 1960.* DR.MED.DENT. *University of Mainz, Germany.*

Microscopic examination of the structure of acrylic dental materials and comparative tests to determine their tensile strength at increasing volumes (Mikroskopische Strukturenuntersuchungen und vergleichende Biegefestigkeitsprüfungen dentaler Kunststoffe bei steigendem Volumen). *Hans Günther Arera. 1959.* DR.MED.DENT. *University of Münster, Germany.*

Significance of physical factors in development of foreign body sarcoma (Die Bedeutung physikalischer Faktoren für die Entstehung von Fremdkörpersarkomen). *Elma Drosson. 1959.* DR.MED.DENT. *University of Münster, Germany.*

Incidence of caries and eruption of permanent teeth in school children between six and fourteen years old of the district of Dorsten (Kariesbefall und Dentition des bleibenden Gebisses bei sechs zu vierzehnjährigen Schülern im Bezirk Dorsten). *Leo Frank. 1959.* DR.MED.DENT. *University of Münster, Germany.*

The palatine process in man and its relation to the form of the jaws and the dentition (Die Gaumenfalten des Menschen im Zusammenhang mit Kieferform und Bezahnung). *H. Teufert. 1960.* DR.MED.DENT. *Medical Academy of Dresden, Germany.*

Reactions of the mucous membrane of the oral cavity to the effects of a 30 per cent hydrogen peroxide solution (Schleimhautreaktionen im Munde nach Einwirkung von einer 30 prozentigen Hydrogenium peroxydatum Lösung). *B. Haak. 1960.* DR.MED.DENT. *Medical Academy of Dresden, Germany.*

Incidence of halitosis in persons with specific occupations (Die Häufigkeit des unangenehmen Mundgeruches in bestimmten Berufen). *W. Müller. 1960.* DR.MED.DENT. *Medical Academy of Dresden, Germany.*

Changes in the gingivae in infants who died of pneumonia (Zahnfleischveränderungen bei an Pneumonie verstorbenen Säuglingen). *R. Kressmann. 1960.* DR.MED.DENT. *Medical Academy of Dresden, Germany.*

Appearance of tooth surface as observed in shadowed replicas [in English]. *Fritz Mannerberg. 1960.* DR.ODONT. *Royal Dental School of Malmö, Sweden.*

Effect of a diet containing the carcinogenic substance 2-acetylamino fluoride on the phosphorus^{32} retention in male rats (Wirkung der Verfütterung des kanzerogenen Stoffes, 2-Azetylaminofluoren, auf die Phosphor^{32} Retention in männlichen Ratten). *Norbert Herschkowitz. 1960.* DR.MED.DENT. *University of Zurich, Switzerland.*

Carcinoma of the lip (Das Lippenkarzinom). *Otto Peter Haab. 1960.* DR.MED.DENT. *University of Zurich, Switzerland.*

Fractures of the jaws treated at the Dental Institute of the University of Zurich between 1945 and 1957: statistical investigation of 508 case reports with special consideration of treatment method and result (Die Kieferfrakturen behandelt im Zahnärztlichen Universitätsinstitute Zürich in den Jahren 1945-1957: Statistische Untersuchungen an 508 Fällen unter besonderer Berücksichtigung der Therapie und des Behandlungserfolges). *Bernhard Miller. 1960.* DR.MED.DENT. *University of Zurich, Switzerland.*

Determination of the mesiodistal width of the crowns of permanent cuspids and bicuspids prior to eruption (Bestimmung der mesio-distalen Kronenbreite der bleibenden Eckzähne und Prämolaren vor ihrem Durchbruche). *Hansjörg Stähle. 1960.* DR.MED.DENT. *University of Zurich, Switzerland.*

Uncomplicated roentgenograms of the skull in instances of brain tumors (Einfache Röntgenbilder des Schädels bei Hirntumoren). *Hermann Schorno. 1960.* DR.MED.DENT. *University of Zurich, Switzerland.*

Changes in volume of silver amalgams during solidification at a temperature of 37°C in water (Das Volumenverhalten von Silberamalgamen während des Erhärtens bei 37°C in Wasser). *Hans Rieder. 1960.* DR.MED.DENT. *University of Zurich, Switzerland.*

Contents

Operative dentistry

An interdental wedge. *Messing*.....451
Amalgam and the cavity wall. *Hatt*.....452
The Airotor handpiece. *Aarons*.....452

Oncology

Cancer in dial painters.....454
Carcinoma of gingiva. *Erich*.....454
Parotid gland tumors. *Funder*.....455
Carcinomas of oral cavity. *Fletcher*.....455
Ameloblastic odontoma. *Clausen*.....456

Oral surgery

Dislocation of the joint. *Hueston*.....457
Staining of parotid gland. *Robinson*.....458
Removal of bone. *Mazorow*.....458
Idiopathic facial paralysis. *Hofmann*.....459

Roentgenology

A roentgenogram analyzer. *Wainwright*....460
Integral absorbed dose. *Reinsma*.....461
X-ray machine survey. *Scavotto*.....462

Anesthesia and analgesia

Technic for narcosedation. *Cranin*.....463

Therapeutics

Ataraxics in dentistry.....464
Safety of petroleum jelly.....464
Maxillary osteomyelitis. *Brand*.....465
Enzymatic wound debridement. *Gargiulo*...465
Use of vitamins in dentistry. *Rinne*.....466

Periodontics

Tooth mobility measurements.*Mühlemann*..467
New periodontal pack. *Eberle*.....468
A new antibiotic agent. *Moeschlin-Krieg*...468
Socioeconomic status. *Russell*.....469

Bacteriology

Bacteria in human mouth. *Onisi*.....470
Oral flora of infants. *Berger*.....470

Biochemistry

Desiccated thyroid and caries. *Muhler*.....471
Fluorine content of teeth. *Elliott*.....471

Pathology

Postoperative parotitis. *Schwartz*.....472
Clinical syndromes. *Schneider*.....473
Trigeminal neuropathy. *Spillane*.....475
Fainting at dental office. *Ross*.....475

Anthropology

Deformations of skull. *Falkenburger*.....476
Teeth of Stone Age man. *Heuser*.....478
Australopithecus. *van Koenigswald*.....478

Histology

Permeability of enamel. *Hardwick*.....480
Pathogenesis of caries. *Weill*.....480

Physiology

Pregnant women. *Mugnier*.....481
Masticatory function. *Lullies*.....481
The smell of saliva. *Kawasaki*.....482
Chewing and tissue fluid. *Brill*.....482

Endodontics

New root canal filler. *Bjorndal*.....483
Infection in root canals. *Shovelton*.....483
A rinsing apparatus. *Zerosi*.....484
Periapical regeneration. *Iwabuchi*.....484

Pedodontics

Dentistry for children. *Wilbur*.....485
Natal and neonatal teeth. *Bodenhoff*.....485

Orthodontics

Orthodontics and biology. *Schwarz*.....486
Extraoral appliances. *Lucchese*.....487
Biologic experiments. *Baume*.....487
Errors in cephalometry. *Hixon*.....488

Prosthetic dentistry

Tuberculous patients. *Pleasure*.....489
Headache and bruxism. *Monica*.....489
Dimensional changes. *Woelfel*.....490

Public health dentistry

Fluoridation around world. *Leatherman*....491
Caries in Peruvian Indians. *Neumann*.....491
Prenatal care and fluorine.....492
Dental hygiene campaign. *Goose*.....492
Diet and caries. *Nederveen-Fenenga*.....493
Unions and dental care. *Krantz*.....493
Dental rehabilitation program. *Ast*.....494
Experimental caries in rats. *Novotný*.....495

Forensic dentistry

Identifying corpses. *Gustafson*.....496
Loss of teeth during surgery.....497

Dentistry around the world

In Israel. *Weigand-Fellinger*.....498

Education

Humboldt University, Berlin. *Münch*.....499

History

Filatov and tubed pedicle. *Barsky*.....500
The cleft palate team. *Kobes*.....501

Organization

Group plan for dentists. *Keil*.....502

General

Value of stomatoscopy. *Scheunemann*.....503
The Brook airway. *Dobkin*.....503
Pattern of a profession.....505
The armed services. *Berry*.....505
The Ainu in Japan. *Bossert*.....506

New equipment

Equipment news 507

Doctoral and Masters' dissertations

Dissertations 508

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Index of authors

Aarons, B. S. 452
Ast, David, B. 494
Ayers, Polly 469

Barsky, A. J. 500
Baume, L. J. 487
Beahrs, Oliver H. 472
Berger, U. 470
Berry, Frank B. 505
Bjorndal, Arne M. 483
Bodenhoff, Jessie 485
Bossert, O. 506
Brand, Terance A. 465
Braun, Ernest J. 455
Brill, N. 482

Clausen, Finn 456
Cranin, A. Norman 463
Cranin, Samuel L. 463

Devine, Kenneth D. 472
Di Salvo, N. A. 491
Dobkin, Allen B. 503
Duerr, Edith L. 489

Eberle, Peter 468
Elliott, C. G. 471
Erich, John B. 454

Falkenburger, F. 476
Fletcher, Gilbert H. 455
Flynn, E. W. 462
Forrest, Herbert J. 458
Fremlin, J. H. 480
Funder, R. 455

Gargiulo, Anthony W. 465
Goldman, Milton 489
Goose, D. H. 492
Gustafson, Gösta 496

Hardwick, J. L. 480
Hatt, S. D. 452
Heuser, Hans 478
Hixon, Ernest H. 488
Hofmann, H. J. 459
Hueston, J. T. 457

Iwabuchi, Masao 484

Johanson, Gunnar 496

Kapovits, M. 470
Kawasaki, Seizo 482
Keil, David M. 502
Kobes, Herbert R. 501
Koike, Kikuko 470
Kragh, Lyle V. 454
Krantz, Goldie 493

Leatherman, G. H. 491
Lucchese, F. Paolo 487
Luijken, R. 493
Lullies, H. 481

MacComb, W. S. 455
Maitland, A. 462
Masters, Frank W. 458
Mazorow, Henry B. 458
Messing, J. J. 451
Moeschlin-Krieg, B. 468
Monica, Woodrow S. 489
Mrklas, Lubor 495
Mugnier, A. 481
Mühlemann, Hans R. 467, 468
Muhler, Joseph C. 471
Münch, Josef 499

Nederveen-Fenenga, M. 493
Neumann, H. H. 491
Novotný, Jaromyr 495

Onisi, Masao 470

Paffenbarger, G. C. 490
Panke, Horst 478
Pfeifer, G. 470
Pleasure, M. A. 489
Pruzansky, Samuel 501

Reinsma, I. K. 461
Rinne, Karl Heinz 466
Robinson, David W. 458
Romano, Michael T. 500
Ross, John B. 475
Russell, Albert L. 469

Scavotto, S. P. 462
Scheunemann, H. 503
Schneider, Gottfried 473
Schoustra, A. 493
Schroeder-Buss, A. 468
Schwartz, Adolf W. 472
Schwarz, A. Martin 486
Shafer, William G. 471
Shovelton, David S. 483
Sidaway, D. A. 483
Spillane, J. D. 475
Smith, M. Doreen 471
Staffileno, Harry 465

Tachibana, Yoshimi 470
van Koenigswald, G. H. 478
Villanyi, Andrew A. 460

Wainwright, W. W. 460
Weigand-Fellinger, B. 498
Weill, Robert 480
Wellock, W. D. 462
Wells, C. E. C. 475
Wilbur, Henry M. 485
Woelfel, J. B. 490

Yanowitz, Bernard 502

Zerosi, Carlo 484

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